Panasonic

Programmable Controller

FP SERIES FP OPC Server

User's Manual

Panasonic FP OPC Server User's Manual

Panasonic Electric Works Europe AG

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BEFORE BEGINNING

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Important Symbols

One or more of the following symbols may be used in this documentation:

Warning!
The warning triangle indicates especially important safety instructions. If they are not adhered to, the results could be fatal or critical injury.

◆CAUTION

Indicates that you should proceed with caution. Failure to do so may result in injury or significant damage to instruments or their contents, e.g. data.

◆NOTE

Contains important additional information.

◆EXAMPLE

Contains an illustrative example of the previous text section.

◆Procedure

Indicates that a step-by-step procedure follows.

◆REFERENCE

Indicates where you can find additional information on the subject at hand.

◆KEY POINTS

Summarizes key points in a concise manner.

◆SHORTCUTS

Provides helpful keyboard shortcuts.

◆EXPLANATION

Provides brief explanation of a function, e.g. why or when you should use it.

☛ next page

Indicates that the text will be continued on the next page.

This documentation uses the following conventions to indicate elements from the user interface or the keyboard:

"Data Field"	Data field entries and option names are rendered in quotation marks.
[Button]	Buttons are indicated by square brackets.
<Key>	Keys are indicated by pointed brackets

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Chapter 1

Overview

1.1 Introduction to the Panasonic FP OPC Server

The Panasonic FP OPC Server is a 32-bit Windows application with a modern user interface. It realizes the server end in the standard client/server model and incorporates the OPC DA standard. It allows you to share information between our proprietary devices (Panasonic FP Series PLCs) and any other device or application that supports the OPC DA standard.

OPC DA technology succeeds Microsoft's Dynamic Data Exchange (DDE) technology in the demanding industrial environment.

1.2 OPC and Its Underlying Technology

OPC (**O**LE (Object Linking and Embedding) for **P**rocess **C**ontrol) is the successor of DDE technology.

According to the OPC Foundation, “OPC is open connectivity in industrial automation and the enterprise systems that support industry. Interoperability is assured through the creation and maintenance of open standards specifications. There are currently seven standards specifications completed or in development (“What is OPC?”; www.opcfoundation.org http://www.opcfoundation.org)”.

OPC is based on a series of approved standards and technologies of the consumer computer world. It was originally based on **OLE COM** (**C**omponent **O**bject **M**odel) and **DCOM** (**D**istributed **C**omponent **O**bject **M**odel), which provide the framework. Microsoft even added OPC standard to the OLE specification. OPC interface applications are built once and used several times, thus are approved and under constant quality control.

With OPC, data can be exchanged efficiently using a standardized interface, hence vendors do not have to implement their own communication drivers. Therefore it allows vendors to reduce implementation costs and save time, thus reducing the project cycle time.

1.2.1 OPC Foundation

The OPC Foundation defines itself as being "dedicated to ensuring interoperability in automation by creating and maintaining open specifications that standardize the communication of acquired process data, alarm and event records, historical data, and batch data to multi-vendor enterprise systems and between production devices. Production devices include sensors, instruments, PLCs, RTUs, DCSs, HMIs, historians, trending subsystems, alarm subsystems, and more as used in the process industry, manufacturing, and in acquiring and transporting oil, gas, and minerals (OPC Foundation; “What is the OPC Foundation?”; www.opcfoundation.org http://www.opcfoundation.org)”.

The OPC Foundation is a cooperation of automation control product vendors and Microsoft. As of 2006, the foundation had about 300 members worldwide. The main standard, with which it all began, is the OPC DA (Data Access) specification.

Compliance tests are provided to the members to test OPC conformity.

1.2.2 COM

The **COM** (**C**omponent **O**bject **M**odel) interface defines the externally visible binary structure of a COM object. The COM object is hereby the implementation of this model and can be based on several interfaces which define access to the object. It offers runtime access to the incorporated interfaces of a COM object and interprocess communication. Reference counting is implemented to manage the object's life cycle. Interactions between components are based on method-accesses defined in interfaces. COM applications are restricted to run locally on single computers only.

1.2.3 DCOM

Upon inception, **DCOM** (**D**istributed **C**omponent **O**bject **M**odel) faced two major challenges:

- program-based processing of information, which led to information being represented differently
- backwards compatibility to existing COM and DDE applications

OLE is based directly on DCOM. The DCOM interface allows COM applications to be distributed on several computers, providing a single security concept.

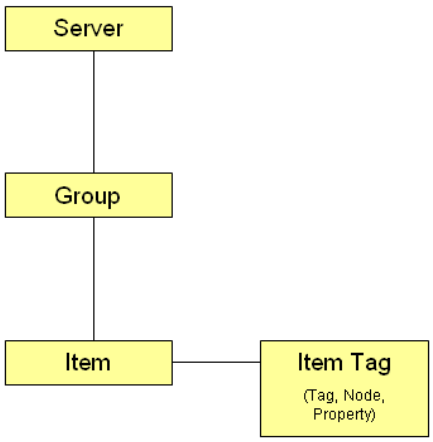
DCOM applications are restricted by not:

- running over firewalls
- being platform independent (only Microsoft operating systems are supported)

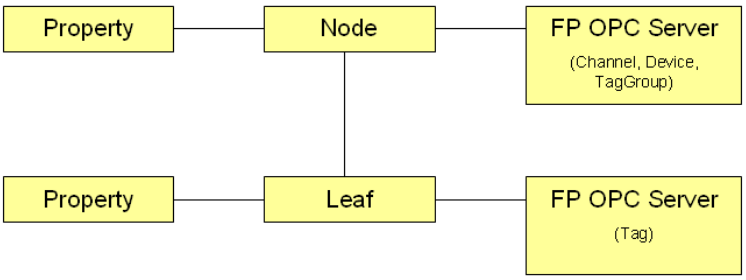
1.2.4 OPC Data Access (DA)

Version 1 of the OPC DA (Data Access) standard was released in 1996. Today version 3.0 is available. A task force within the OPC Foundation http://www.opcfoundation.org maintains and revises the OPC DA specification.

The specification shows and describes how to construct client and server applications and allows vendors to quickly develop their own applications. It defines object hierarchy consisting of several **OPC server objects**, which in turn can consist of several **OPC group objects**. The group objects themselves can be composed of **OPC item objects**. OPC items correspond to process values and represent connections to data sources.



The COM interface incorporated in the server offers the client two object types: group and item. A server object is automatically created after the client connects to the server. Associated with each item is a time stamp, its quality and the value of the item as a VARIANT type. The item tags--tag, node or property objects--have to be realized on the server side.



The node objects can contain either other node objects or leaf objects. Node objects are implemented as channel, device or tag group elements within the FP OPC Server. Tag objects, which are implemented as tag elements, represent the leaf objects in the object tree.

The OPC client connected to the OPC server is responsible for the type of information it retrieves. It has to define the group structure, the poll rate and the read type, i.e. asynchronous or synchronous data retrieval. Using synchronous data retrieval, the client has to wait until the read operation is finished; using asynchronous data retrieval, on the other hand, allows the client to be informed immediately when data changes.

1.3 Features of the FP OPC Server

The Panasonic FP OPC Server is a **OutProc Server**, thus the server application is started from an autarkic executable file. The server allows high-performance data transfer between applications that support the OPC DA standard and Panasonic FP Series PLCs.

The following features are provided:

1.3.1 Connectivity

The server provides “two-sided” connectivity: one side provides access to applications that support OPC DA; the other side provides access to FP Series PLCs.

In order to enable the user to perform functional tests, a simulation mode is implemented. This mode allows you to design the application without any PLC being connected to the computer.

OPC Connectivity

The server complies to the following OPC DA client/server technologies:

- OPC DA 1.0a
- OPC DA 2.05a
- OPC DA 3.0

Data can be exchanged between client and server in asynchronous, synchronous and refresh mode.

Device Connectivity

A standardized interface allows you to:

- monitor data from Panasonic FP PLCs
- synchronize data access and data writing
- use various communication types

PLCs can be accessed via serial port (see page 79), modem (see page 61) and Ethernet (see page 80). The server offers modem support to connect to remote stations via dial-up phone calls.

Specify the communication mode at the communication channel level when you configure the application. Setting up the communication channel to use the modem means that dialing and connecting to the remote device is fully transparent to the OPC client application. Modem connections and direct serial communication work similarly.

1.3.2 Interruption Tolerance

In case a connected device stops responding, for instance because of a line interruption, the optimized communication is carried on for the still connected devices. Thus, the communication breakdown does not influence the time-out or response behavior of the devices which are still online. If the device starts being responsive again, the data transfer from / to the previously disconnected PLC is reinitialized and carried out normally.

1.3.3 Communication Driver Test and Protocol Adaptation

If the server or application created with the server should be tested, the user can use a simulation driver to simulate reading and writing from and to virtual devices.

To test MEWTOCOL protocol communication, the channel settings made by the user can be tested directly in the server application. Furthermore, the user can influence the type of protocol (use of RD commands instead of MD commands) to be used to prevent interdependencies with other applications using the MEWTOCOL protocol, for instance.

For detailed information, please refer to the Options dialog of the Tools menu in the online help.

1.3.4 User Interface

A modern, intuitive user interface (see page 43) allows you to configure the server. While creating the application, sophisticated user assistance is available at any time. Various hints and error notifications help you configure the server. Online documentation is omnipresent to clarify the server configuration application. You are warned of possible faulty settings or changes while the server is running. Wizard dialogs assist you in creating and altering elements.

The server allows you to change the display of the main window. The server can appear minimized as an icon in the system tray or maximized on the desktop. If started by an OPC client, the server is automatically started minimized in the tray icon, but can be brought to the foreground by simply double clicking the icon in the system tray (see page 67).

1.3.5 Namespaces

The OPC client browse able namespace provided by the server represents a description of all process values an OPC client can query from. It can be distinguished between three different types of namespace elements.

For detailed information, please refer to Namespaces (see page 69).

Static, Manual Namespace

The manual, "static" namespace is specified in the configuration user interface of the server. The user who administrates the server, creates channels, devices, tag groups and tags. The user specifies the settings of the communication lines, the PLC and the data sources to be provided to the client.

For detailed information, please refer to Static, Manually Defined Namespace (see page 71).

System Status Namespace

This namespace contains system tags, which are used to provide status feedback on the server running. The client simply creates items of these tags and thereby retrieves the server status directly in the client application. The system status namespace shows the system date, system time, uptime, project path, number of tags, number of tags active in the clients and the number of clients connected.

For detailed information, please refer to System Status Namespace (see page 72).

MEWTOCOL OPC Server Compatibility Namespace

A MEWTOCOL OPC Server (the predecessor of this server) compatibility namespace is also provided. The user configures the communication settings, which are common for the communication lines (serial (see page 59), modem (see page 61) or Ethernet (see page 62)). To use this namespace, the OPC client has to create the items such that they follow a certain syntax. The item path can be adapted to the specific needs.

For syntax regulations and restrictions, please refer to MEWTOCOL OPC Server compatibility namespace (see page 73).

1.3.6 Demo Mode

If no valid serial number is specified during the installation procedure, the server runs in demo mode and terminates execution after 30 minutes. In this mode the server offers full functionality, but runtime is limited. This mode is active for 30 days after installation.

1.3.7 Online Changes

During online sessions, i.e. when OPC clients are connected to the FP OPC Server, you can make comprehensive changes to the currently opened project. You can add new elements such as channels, devices, tag groups or tag elements (see page 50) to the project. You can apply all kinds of changes, except deleting and renaming, to all elements.

◆**NOTE**

You can only delete and rename elements which are not currently being used by the client.

1.4 Hardware and Software Requirements

	Item	Required
Hardware	Hard disk space	20MB or more
	CPU grade	300MHz or more
	Lowest capacity memory	128MB or more
	Available display resolution	1024 *768 or more
Operating Systems	Microsoft Windows 2000	SP4
	Microsoft Windows XP	For SP2, please refer to DCOM configuration (see page 81)
	Microsoft Windows Vista	512MB or more
	Microsoft Windows 2000 Server	SP4
	Microsoft Windows 2003 Server	SP2

Chapter 2

First Steps Using the FP OPC Server

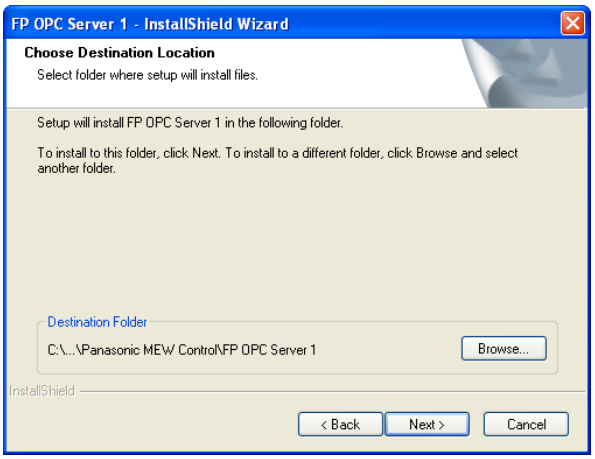
2.1 Install the FP OPC Server

Before you begin the installation, unzip “SetupFPOPCServerxx.zip” and save it on your hard drive.

◆Procedure

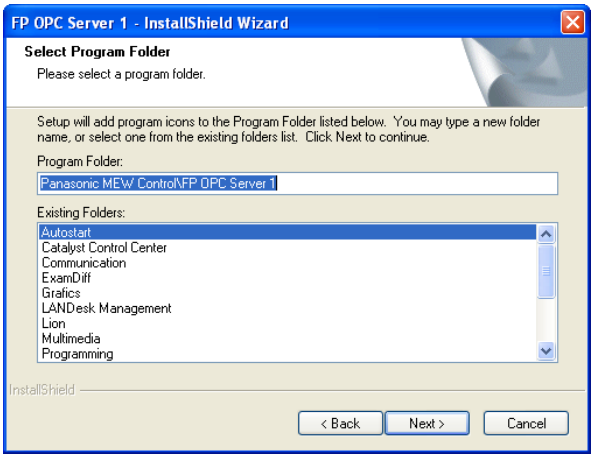
1. **Double-click “SetupFPOPCServerxx.exe” to run the installer**
2. **Select [Next]**
3. **Read and accept the "License Agreement"**
4. **Select [Next]**

   The following dialog appears and allows you to review the path you entered.


FP OPC Server 1 - InstallShield Wizard
Choose Destination Location
Select folder where setup will install files.
Setup will install FP OPC Server 1 in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\...\Panasonic MEW Control\FP OPC Server 1
Browse...
InstallShield
< Back
Next >
Cancel

5. **Select [Browse] to select the installation directory**
6. **Select [Next]**

   The following dialog appears.



7. **Specify the location of the program icons in the start menu**

8. **Select [Next]**

   The dialog "Start Copying Files" appears so you can review your settings.

9. **If the settings are OK, select [Next] to install the software**

10. **Select whether to restart your PC and then [Finish] to finish the installation**

    The Panasonic FP OPC Server is now installed on your system.

◆NOTE

Start the FP OPC Server at least once to register the application in the windows system.

2.2 Software Activation

After you have installed the FP OPC Server, please activate your license within 30 days. After activation, the software can only be used on the computer where it was installed.

Select **Help** → **License Viewer** (see page 17) to display the current license information. The mode is also displayed in the title bar and in the dialog **Help** → **About**.

The following modes are possible:

1. **Demo mode** (e.g. software evaluation after download)

   After the first start, the software runs unlicensed in demo mode (see page 8). In this mode, the software can run for 30 minutes each start. After 30 days, you must enter a serial number as proof of purchase to switch off the demo mode.

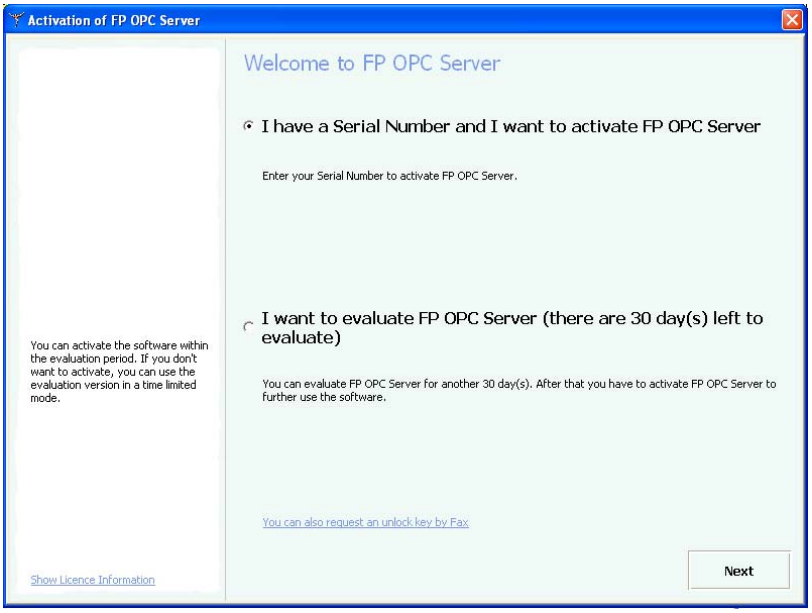
2. **Nonactivated mode** (e.g. after installation from CD with serial number)

   After entering a valid serial number normally found on your package, the software runs in nonactivated mode for 30 days.

3. **Activated mode**

   For unlimited use, you have to order an unlock key via e-mail or fax. The unlock key requires hardware information from the computer upon which the software is installed. Hence the software can only be used on that computer thereafter.

If the FP OPC Server is not activated, the activation wizard is displayed each time you start the FP OPC Server manually. The wizard will remember each step you have completed.


Activation of FP OPC Server
Welcome to FP OPC Server
I have a Serial Number and I want to activate FP OPC Server
Enter your Serial Number to activate FP OPC Server.
I want to evaluate FP OPC Server (there are 30 day(s) left to evaluate)
You can evaluate FP OPC Server for another 30 day(s). After that you have to activate FP OPC Server to further use the software.
You can also request an unlock key by Fax
You can activate the software within the evaluation period. If you don't want to activate, you can use the evaluation version in a time limited mode.
Show Licence Information
Next

◆ Procedure

1. **Select "I have a Serial Number and want to activate FP OPC Server"**

   At each step you can select "Show License Information" to start the License Viewer

(see page 17).

2. **Choose between activation via e-mail (an e-mail account or at least an e-mail program needed) or activation via fax (printer needed).**

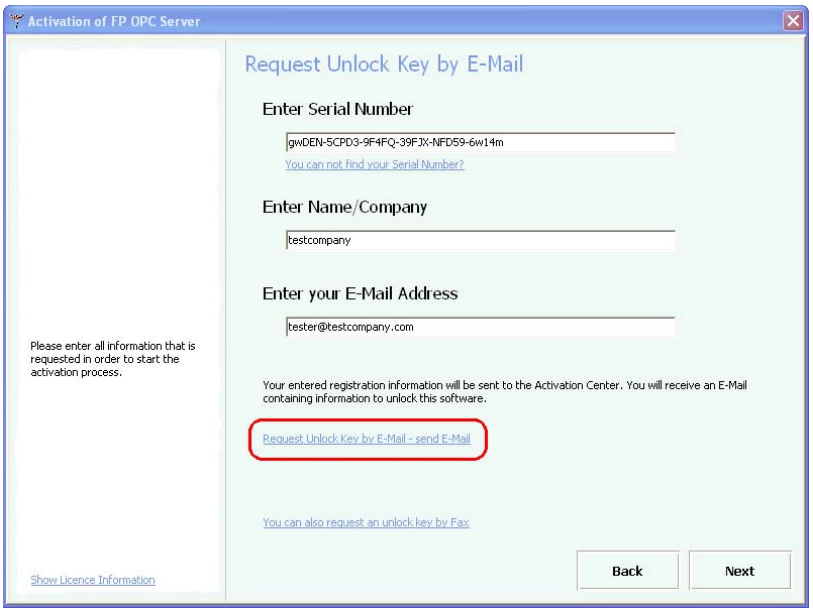
   [Next] is available only after you chosen e-mail or fax.

Continue activating via e-mail (see page 15)

Continue activating via fax (see page 16)

Activation Via E-Mail

1. **Select "Request Unlock Key by E-Mail"**
2. **Enter the required information**


Activation of FP OPC Server
Request Unlock Key by E-Mail
Enter Serial Number
gwDEN-5CPD3-9F4FQ-39FJX-NFD59-6w14m
You can not find your Serial Number?
Enter Name/Company
testcompany
Enter your E-Mail Address
tester@testcompany.com
Please enter all information that is requested in order to start the activation process.
Your entered registration information will be sent to the Activation Center. You will receive an E-Mail containing information to unlock this software.
Request Unlock Key by E-Mail - send E-Mail
You can also request an unlock key by Fax
Show Licence Information
Back
Next

Please find the serial number on your CD case or package. If you do not have a serial number, please contact your local Panasonic provider (see page 89) to purchase a valid license for your software product.

3. **Select "Request Activation Key by E-Mail - send E-Mail"**

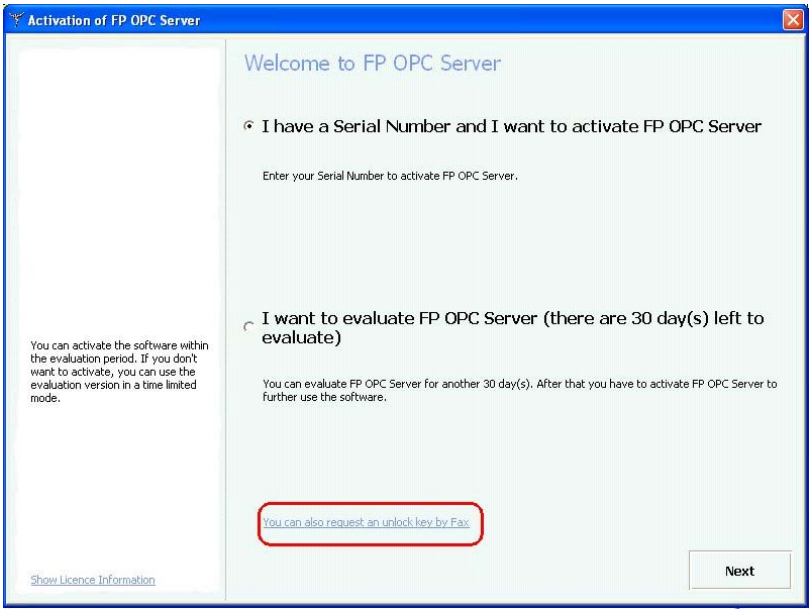
   All required information will be sent to Panasonic. You will receive an answer that contains two unlock keys. Now enter both keys exactly in the order you receive them.

4. **Enter the first, case-sensitive key under "Enter Unlock Key" in the activation Wizard**
5. **[Apply]**
6. **Enter the second key**
7. **[Apply]**

   You will receive a message that the activation has been finished successfully.

Activation Via Fax

1. **Select "You can also request an unlock key by Fax"**


Activation of FP OPC Server
Welcome to FP OPC Server
I have a Serial Number and I want to activate FP OPC Server
Enter your Serial Number to activate FP OPC Server.
I want to evaluate FP OPC Server (there are 30 day(s) left to evaluate)
You can evaluate FP OPC Server for another 30 day(s). After that you have to activate FP OPC Server to further use the software.
You can activate the software within the evaluation period. If you don't want to activate, you can use the evaluation version in a time limited mode.
You can also request an unlock key by Fax
Show Licence Information
Next

2. **Enter the required information**
3. **Select "Request Unlock Key by Fax - print Fax"**
4. **Print out the sheet and send the fax to Panasonic**

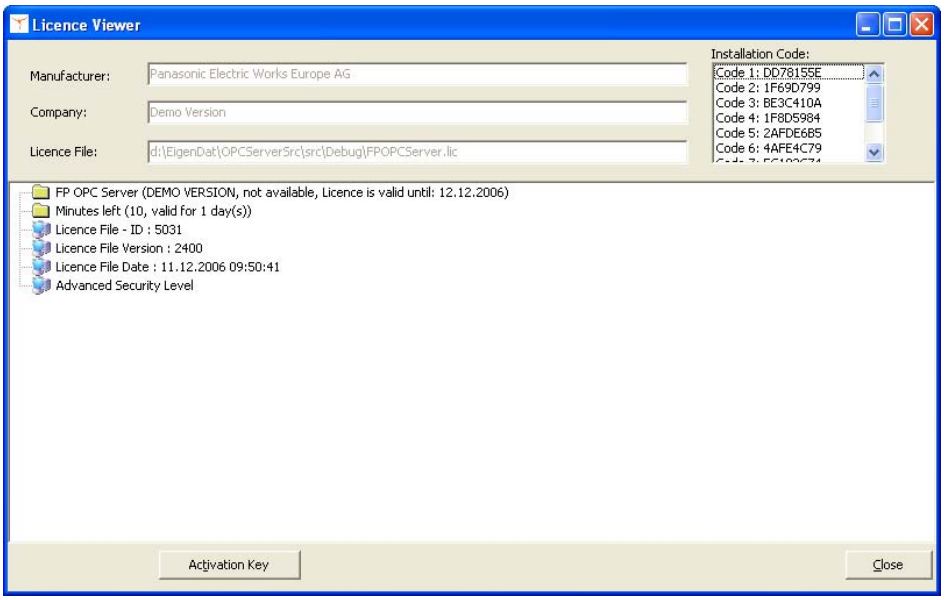
   You will receive an answer that contains two unlock keys. Now enter both keys exactly in the order you receive them.

5. **Enter the first, case-sensitive key under "Enter Unlock Key" in the Activation Wizard**
6. **[Apply]**
7. **Enter the second key**
8. **[Apply]**

   You will receive a message that the activation has been finished successfully.

2.2.1 License Viewer

The License Viewer displays the license information. (You cannot modify the information.)



Basic Information

Manufacturer	Manufacturer of your software
Company	The company or the user to whom the application is licensed. **If this is not the name of your company, the license will not be valid**. Contact your local Panasonic provider (see page 89).
License file	Name of the license file

License Information

License name	Short description of a license
Additional information in brackets	E.g. Demo version, Web activation required

Additional Information

License File-ID	Unique number of the license file
License File Version	Version number of the license file
License File Date	Creation date of the license file

Installation Code

Installation Code	Unique key - identifies your system and is used for registration under specific circumstances. Double-click to copy to the clipboard.

Buttons

Activation Key	Applies an activation key (see page 18) based on the current mode.
Close	Closes the License Viewer

2.2.2 Activation Key

Activation keys allow you to change the status of your software, e.g.:

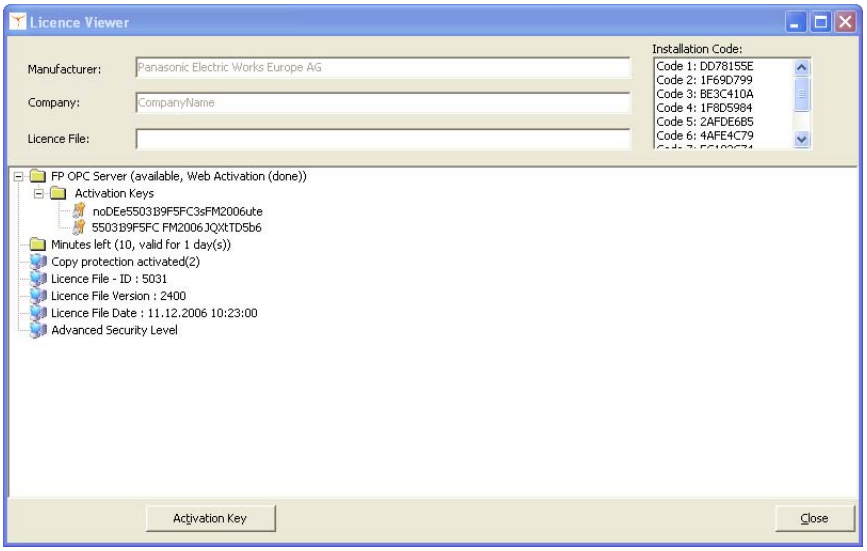
- from demo mode (see page 8) to non-activated mode by entering the serial number
- from non-activated mode to activated mode by entering the activation (unlock) key

Press [Activation Key] to enter the serial number or the unlock key.

Each activation key can be used only once.

Icon for the activation key

In the following screenshot, activation has been completed.



2.2.3 Notes on Removing the Software

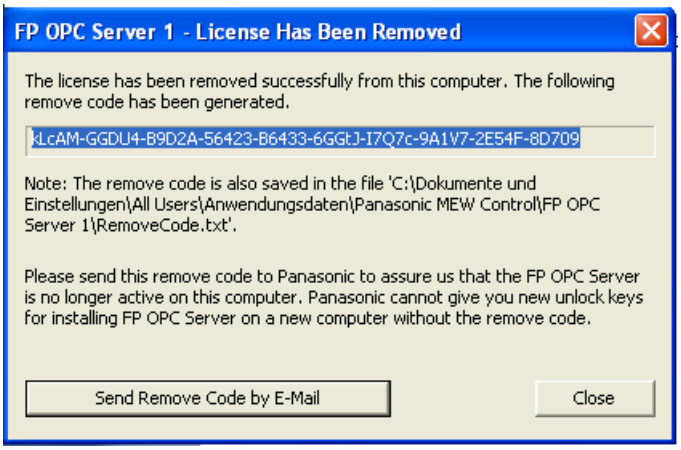
When you deinstall the software from your computer, the deinstallation wizard will also remove your unlock key. You will be prompted to send an e-mail to Panasonic so that you can obtain a new unlock key for the new computer.

◆Procedure

1. **Select FP OPC Server within your software control panel**
2. **[Remove]**

3. **Follow the InstallShield Wizard's instructions**

   During the deinstallation, the following dialog appears.


FP OPC Server 1 - License Has Been Removed
The license has been removed successfully from this computer. The following remove code has been generated.
kLcAM-GGDU4-B9D2A-56423-B6433-6GGtJ-I7Q7c-9A1W7-2E54F-8D709
Note: The remove code is also saved in the file 'C:\Dokumente und Einstellungen\All Users\Anwendungsdaten\Panasonic MEW Control\FP OPC Server 1\RemoveCode.txt'.
Please send this remove code to Panasonic to assure us that the FP OPC Server is no longer active on this computer. Panasonic cannot give you new unlock keys for installing FP OPC Server on a new computer without the remove code.
Send Remove Code by E-Mail
Close

4. **Select [Send Remove Code by E-mail]**

   All necessary data is copied into an e-mail to "free" the used license and your standard e-mail program is launched.

5. **Send the e-mail**

   If there are e-mail delivery problems, you can find a copy of the automatically generated text under "C:\Documents and Settings\All Users\Application Data\Panasonic MEW Control\FP OPC Server 1\RemoveCode.txt. Please send this text file again to: licensing-eu@eu.pewg.panasonic.com.

◆**NOTE**

Once you have removed the license from the current computer, the software continues to run in the nonactivated mode. The activation keys previously received cannot be applied again. To reactivate the software on a new computer or the same computer, please install the software again and run the Software Activation (see page 14).

2.3 Start/Stop the FP OPC Server Application

2.3.1 Start the FP OPC Server Application

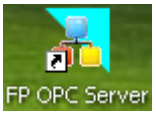
The OPC server can start in two modes:

- manually
- automatically, when an OPC client application tries to connect to the server.

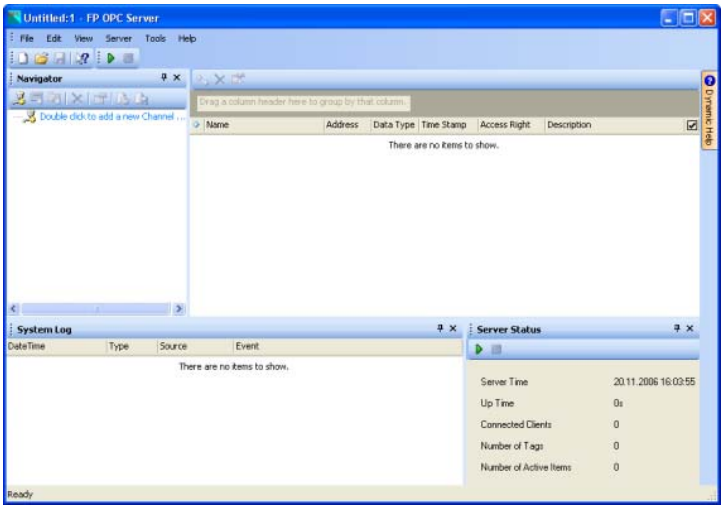
Manual Start

Procedure

1. **Double-click the FP OPC Server icon**



The configuration user interface with an empty project is started.


Untitled:1 - FP OPC Server
File Edit View Server Tools Help
Navigator
Double click to add a new Channel ...
Drag a column header here to group by that column.
Name Address Data Type Time Stamp Access Right Description
There are no items to show.
Dynamic Help
System Log
DateTime Type Source Event
There are no items to show.
Server Status
Server Time 20.11.2006 16:03:55
Up Time 0s
Connected Clients 0
Number of Tags 0
Number of Active Items 0
Ready

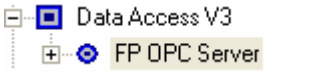
Automatic Start

1. **Start the OPC client application**

   Here the Softing Demo Client is started.

2. **Browse the available server list, select FP OPC Server and connect to the server**

Here by double-clicking the icon.



Now the OPC server is started automatically and the server icon is displayed in the system tray (see page 67).

The default project file (specified under **Tools** → Options) is automatically loaded, the OPC subsystem is started and the client is connected to the server. If no default project has been specified, the most recently used project is loaded.

◆NOTE

If the OPC server application is started manually but the OPC subsystem has not been started, a new client connect starts the OPC subsystem and connects to this server instance.

2.3.2 Stop the FP OPC Server Application

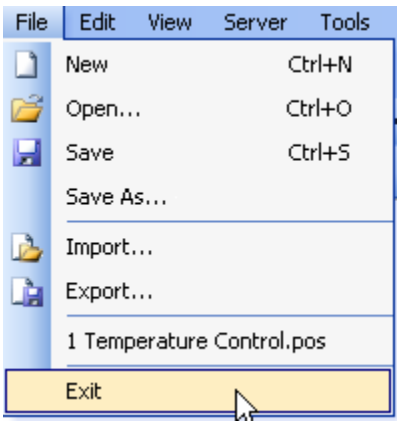
The OPC server application also stops in two ways:

- manually, e.g. by user intervention
- automatically, after the last OPC client application terminates the connection to the OPC server.

Manual Stop

◆Procedure

1. **Select "Exit" in the File menu or tray icon menu**



Alternatively, click the close button of the application window.

Automatic Stop

The OPC server sutomatically stops when all clients have disconnected.

◆**NOTE**

The OPC server application is only terminated automatically if the configuration window is minimized to the system tray (see page 67).

2.4 Channels

A channel represents a means of communication. The following means of communication are possible:

- Serial communication (see page 79) (RS232)
- Modem (see page 61)
- Ethernet (see page 80)
- USB (see page 66)

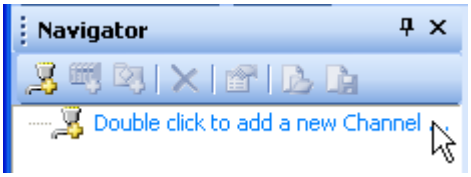
Please also refer to:

- Channel element in the online help
- New Channel Wizard (see page 55)

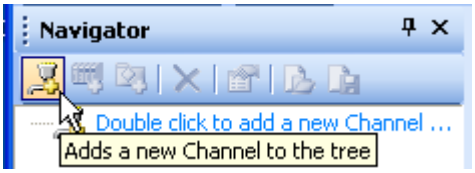
2.4.1 Add a New Channel

There are four ways to add a new channel element:

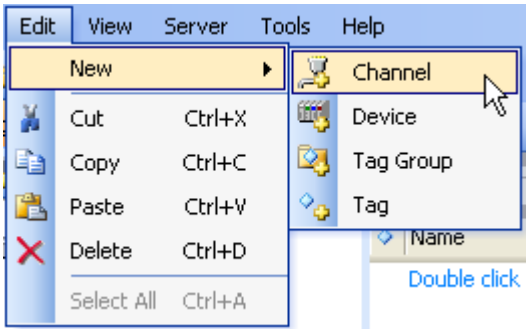
1. Double-click the dummy element



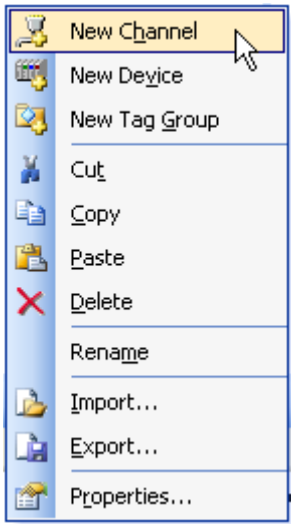
2. Click a toolbar icon



3. Select menu Edit → New → Channel



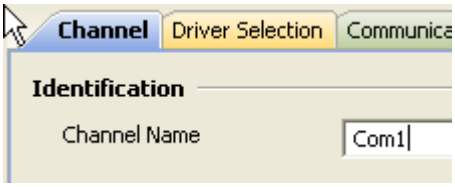
4. Select **New Channel** from the navigator pane's (see page 49) pop-up menu.



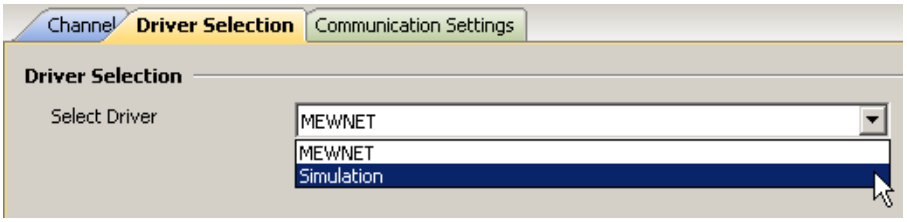
In all cases the wizard (see page 55) starts. Now create the new channel.

Procedure

1. **Specify a name for the new channel**

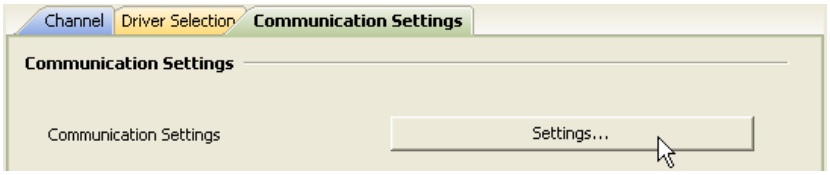


2. **Select the driver**



For further information, refer to driver selection.

3. **Fill in the communication settings by clicking [Settings...]**

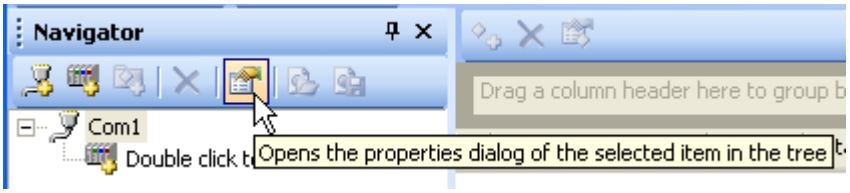


The communication settings (see page 59) dialog will appear.

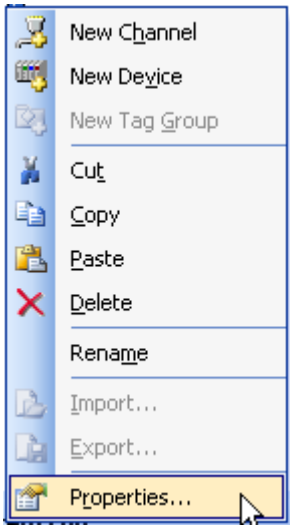
2.4.2 Update an Existing Channel

To update and existing channel element:

- double-click the channel element, or
- select **Properties** from the toolbar or pop-up menu.


Navigator
Drag a column header here to group b
Com1
Double click t
Opens the properties dialog of the selected item in the tree

Select "Properties" from the toolbar.



Select "Properties" from the pop-up menu.

2.5 Element Structure

The FP OPC Server allows the creation of a clearly membered hierarchical element structure that fits the nature of the application. The hierarchy consists of several layers: On the first layer, multiple communication channels specify the mean communication. The channels comprise multiple devices to specify the PLC and its station number. Devices can contain multiple tag groups to segregate tag data on a group-by-group basis. Devices or tag groups themselves contain the tag data (see page 50).

A state-of-the-art import/export mechanism allow you to save, exchange or edit the data in the XML file format. Exchanging data can also be done using a CSV file. For further information, please refer to Import/Export Tag Information (see page 58).

2.6 Devices

A device represents a hardware device, a Panasonic FP series PLC, connected to the OPC server.

The data sources provided by the server application in the namespaces (see page 69) are situated on these devices. Data sources are hereby relay or register addresses (see page 76), which can be accessed by the OPC server.

Please also refer to:

- Device element in the online help
- New Device Wizard (see page 56)

2.6.1 Add a New Device

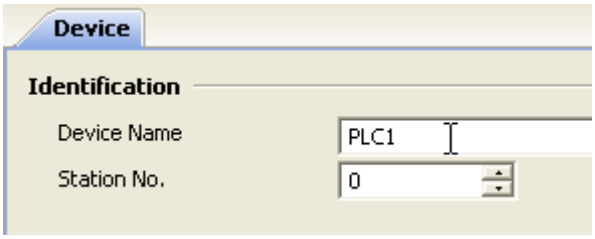
Procedure

1. **Open the wizard (see page 56) to create a new device element in one of the four ways described in "Add a New Channel (see page 55)"**

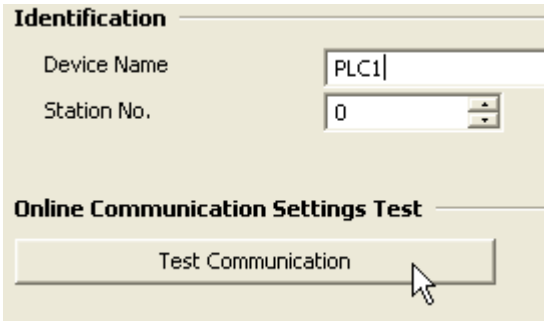
   Here the dummy item is used to create a new device.

   The wizard opens.

2. **Specify a name for the new device.**



3. **To test the communication settings specified for the "Channel (see page 23)", select [Test Communication]**



To update an existing device, please refer to the procedure of update an existing channel (see page 25).

2.7 Tag Groups

Tag groups are not necessary but are very useful for arranging your project in a structured manner.

Please also refer to:

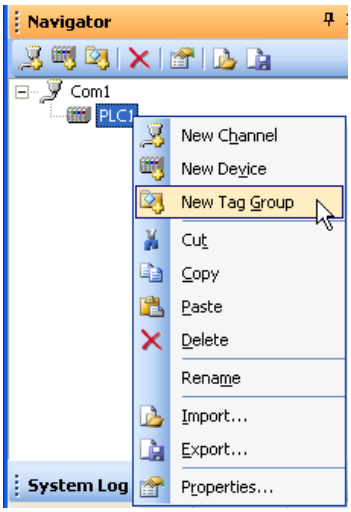
- Tag group element in the online help
- New Tag Group Wizard (see page 56)

2.7.1 Add a New Tag Group

Procedure

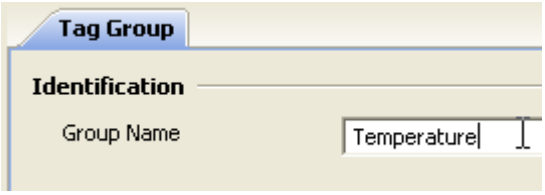
1. **Open the wizard (see page 56) to create a new tag group element in one of the four ways described in "Add a New Channel (see page 55)"**

   Here the pop-up menu is used to create the new tag group.



   The wizard opens.

2. **Specify the name of the tag group element**



To update an existing tag group, please refer to the procedure of update an existing channel (see page 25).

2.8 Tags

A tag represents a single PLC variable (address).

Please also refer to:

- Tag pane (see page 50)
- New Tag Wizard (see page 57)

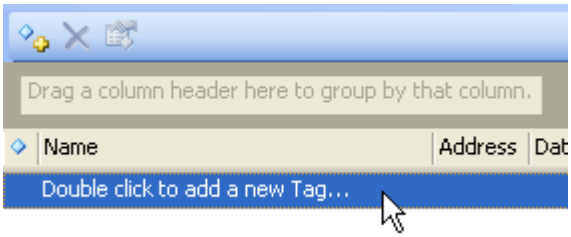
2.8.1 Add a New Tag

Procedure

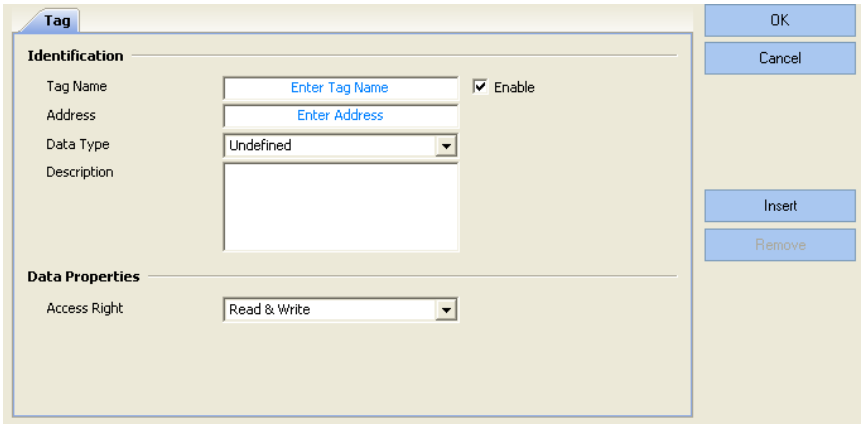
1. **Create a tag as described in "Add a New Channel (see page 23)" section**

   Here, the dummy item is used to create the new tag.

2. **Double-click to add a new tag**



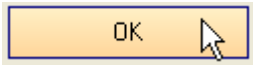
   The wizard opens.



3. **Specify the name, correct address, data type, description and the access type of the tag element**

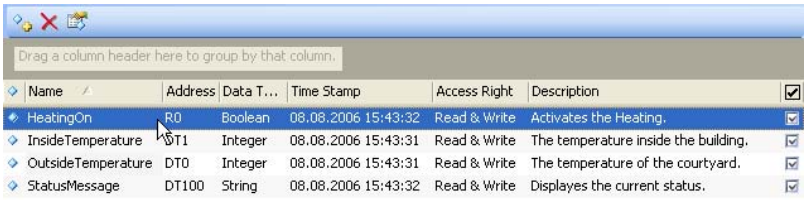
4. **Select [Insert] to add the element directly to the list without closing the dialog**

   Repeat selecting [Insert] to create a series of tag elements that count up tag names and addresses.

5. **Select**  **when you have finished adding all elements**

◆EXAMPLE

An example namespace.



Name	Address	Data T...	Time Stamp	Access Right	Description
HeatingOn	R0	Boolean	08.08.2006 15:43:32	Read & Write	Activates the Heating.
InsideTemperature	DT1	Integer	08.08.2006 15:43:31	Read & Write	The temperature inside the building.
OutsideTemperature	DT0	Integer	08.08.2006 15:43:31	Read & Write	The temperature of the courtyard.
StatusMessage	DT100	String	08.08.2006 15:43:32	Read & Write	Displayes the current status.

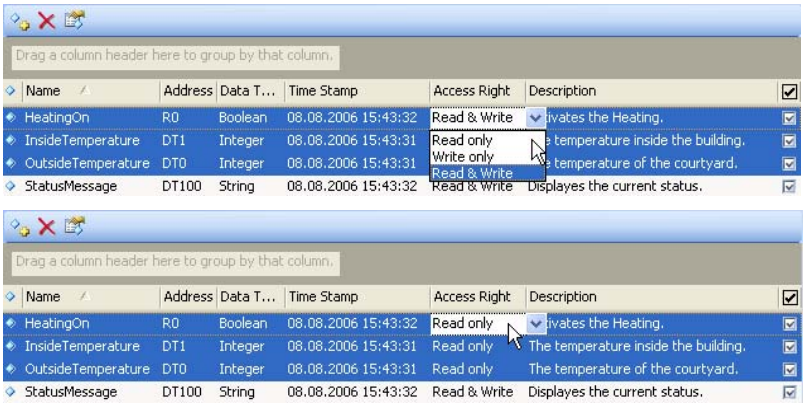
2.8.2 Update an Existing Tag

You can update an existing tag in several ways.

For example, simply click in the field which should be changed, e.g. to update a name.

Name	Address	Data T...	Time Stamp	Access Right	Description
HeatingOn	R0	Boolean	08.08.2006 15:43:32	Read & Write	Activates the Heating.
InsideTemperature	DT1	Integer	08.08.2006 15:43:31	Read & Write	The temperature inside the building.
OutsideTemperature	DT0	Integer	08.08.2006 15:43:31	Read & Write	The temperature of the courtyard.
StatusMessage	DT100	String	08.08.2006 15:43:32	Read & Write	Displayes the current status.

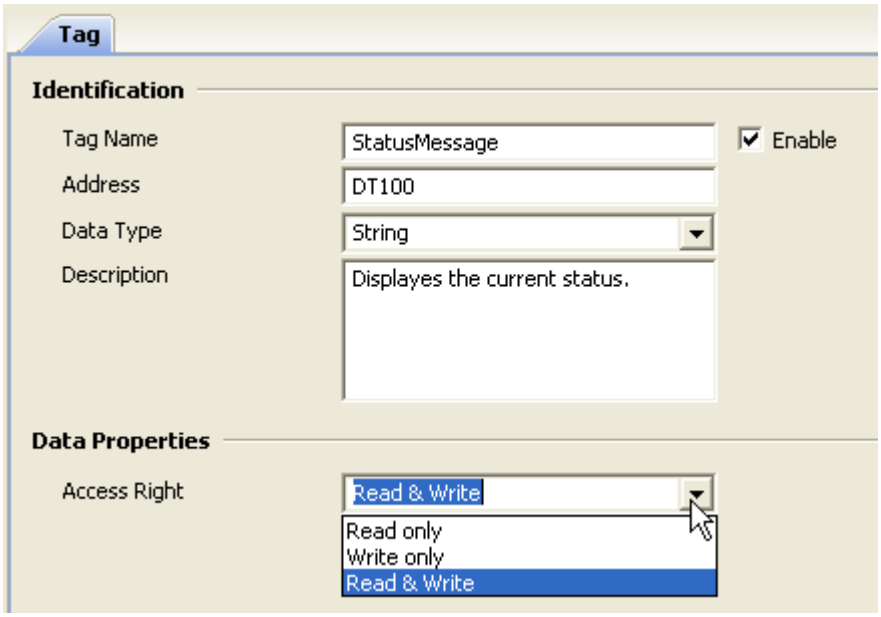
Change multiple elements by selecting the desired elements and typing or selecting the new value. In this case, 3 elements were selected and their access rights changed to "read only".



Name	Address	Data T...	Time Stamp	Access Right	Description
HeatingOn	R0	Boolean	08.08.2006 15:43:32	Read & Write	ivates the Heating.
InsideTemperature	DT1	Integer	08.08.2006 15:43:31	Read only / Write only / Read & Write	temperature inside the building.
OutsideTemperature	DT0	Integer	08.08.2006 15:43:31		temperature of the courtyard.
StatusMessage	DT100	String	08.08.2006 15:43:32	Read & Write	Displayes the current status.

Name	Address	Data T...	Time Stamp	Access Right	Description
HeatingOn	R0	Boolean	08.08.2006 15:43:32	Read only	ivates the Heating.
InsideTemperature	DT1	Integer	08.08.2006 15:43:31	Read only	The temperature inside the building.
OutsideTemperature	DT0	Integer	08.08.2006 15:43:31	Read only	The temperature of the courtyard.
StatusMessage	DT100	String	08.08.2006 15:43:32	Read & Write	Displayes the current status.

You can also change the tag's properties by double-clicking the tag to activate the wizard.



◆**NOTE**

You can only update values for individual elements when you use the wizard.

2.9 Server Operation

In order to accept connections for an OPC client application, you must start the server's OPC subsystem by clicking . After the server is started, clients can connect to the server.

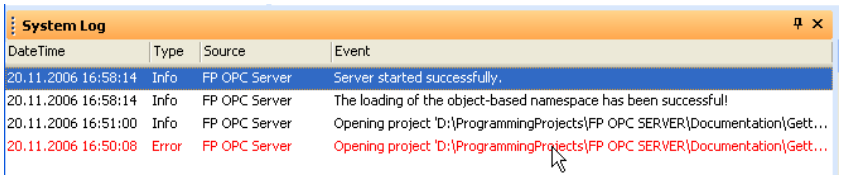
◆NOTE

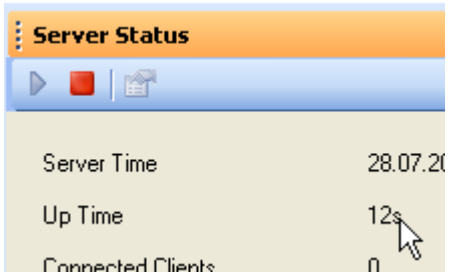
If the OPC server application is started manually but the OPC subsystem has not been started, a new client connect starts the OPC subsystem and connects to this server instance.

2.9.1 Start the Server

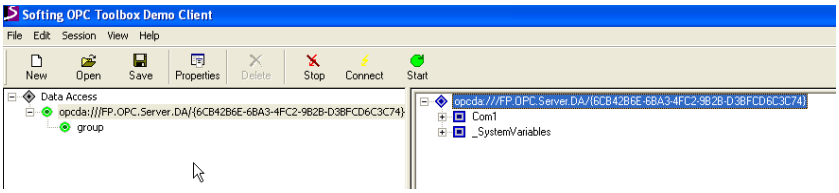
You will be notified when the server has been started successfully by:

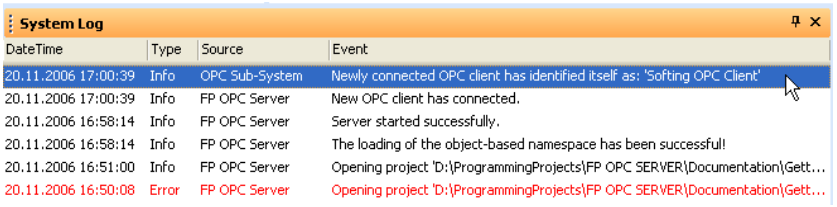
- a log message (see page 51) in the system log pane and
- an incrementing "Up Time (see page 52)" value in the server status pane (see page 52).

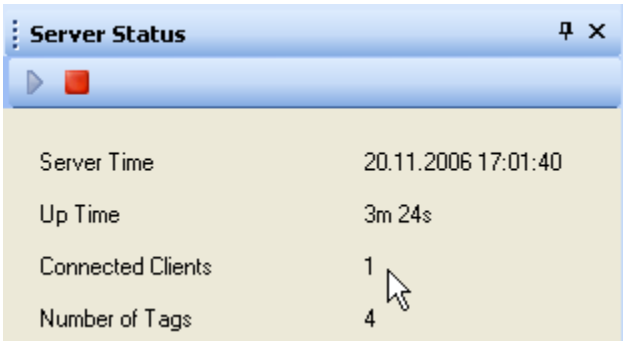

System Log
DateTime Type Source Event
20.11.2006 16:58:14 Info FP OPC Server Server started successfully.
20.11.2006 16:58:14 Info FP OPC Server The loading of the object-based namespace has been successful!
20.11.2006 16:51:00 Info FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\Gett...
20.11.2006 16:50:08 Error FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\Gett...



You can also see that a client is connected (here the Softing Demo Client) in the system log and server status panes.




System Log
DateTime Type Source Event
20.11.2006 17:00:39 Info OPC Sub-System Newly connected OPC client has identified itself as: 'Softing OPC Client'
20.11.2006 17:00:39 Info FP OPC Server New OPC client has connected.
20.11.2006 16:58:14 Info FP OPC Server Server started successfully.
20.11.2006 16:58:14 Info FP OPC Server The loading of the object-based namespace has been successful!
20.11.2006 16:51:00 Info FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\Gett...
20.11.2006 16:50:08 Error FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\Gett...

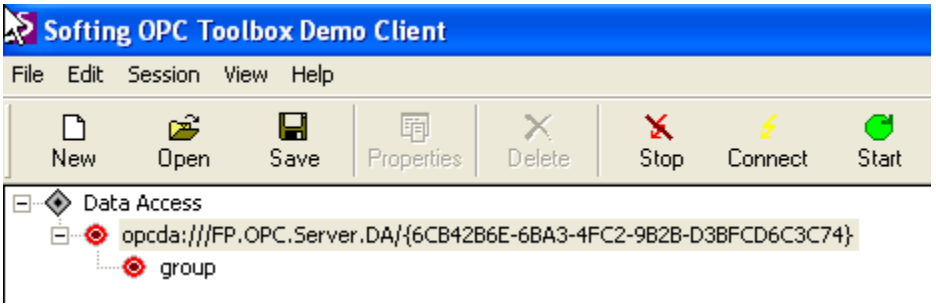


2.9.2 Stop the Server

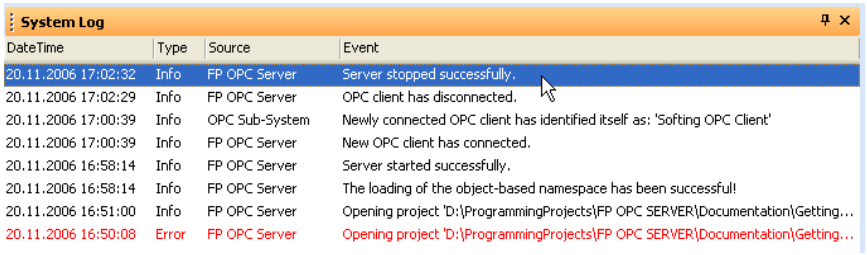
To stop the OPC subsystem, press .

◆NOTE

All connections to OPC clients are terminated.



Now the demo client has been disconnected. A log message informs you that the OPC client has been disconnected and that the server has stopped.


System Log
DateTime Type Source Event
20.11.2006 17:02:32 Info FP OPC Server Server stopped successfully.
20.11.2006 17:02:29 Info FP OPC Server OPC client has disconnected.
20.11.2006 17:00:39 Info OPC Sub-System Newly connected OPC client has identified itself as: 'Softing OPC Client'
20.11.2006 17:00:39 Info FP OPC Server New OPC client has connected.
20.11.2006 16:58:14 Info FP OPC Server Server started successfully.
20.11.2006 16:58:14 Info FP OPC Server The loading of the object-based namespace has been successful!
20.11.2006 16:51:00 Info FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\Getting...
20.11.2006 16:50:08 Error FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\Getting...

2.10 Transferring Project Information

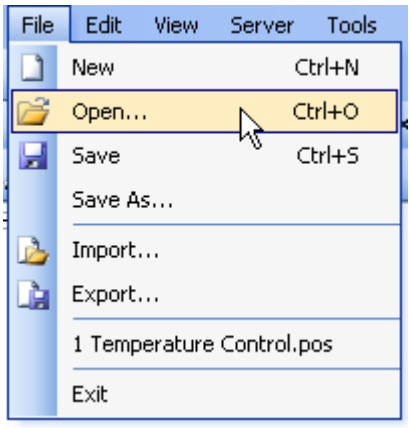
You can save project data in XML or CSV format and exchange tag data between various OPC servers, e.g. Kepware or Beijers. You can also import global variables from Control FPWIN Pro in CSV format.

2.10.1 Open/Save Project

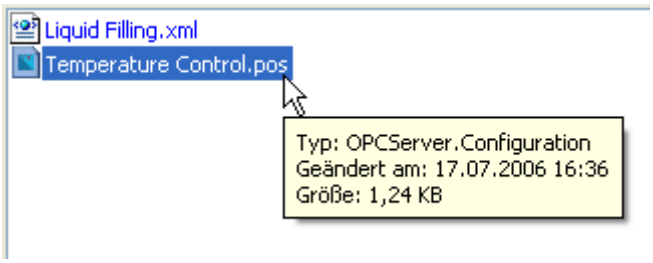
Procedure

Open Project

1. **Select File → Open or from the toolbar**

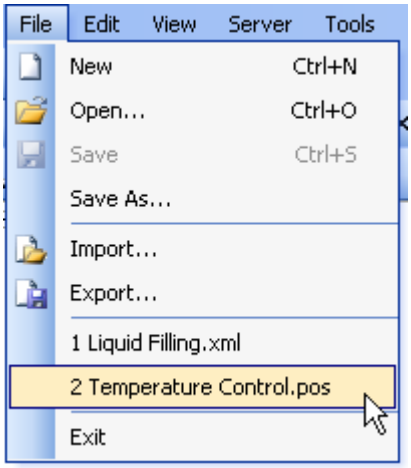


In the file open dialog all supported file formats (*.pos, *.xml) are displayed.



2. **Select the desired file and click [Open]**

Alternatively, select a file from the recently opened file list.

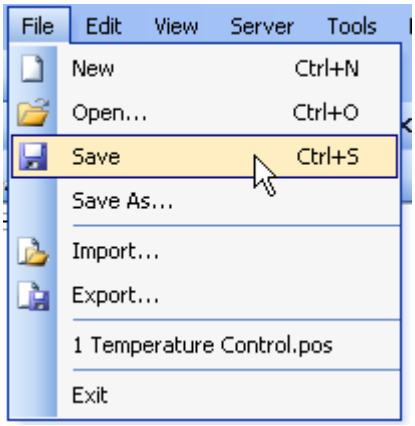


◆NOTE

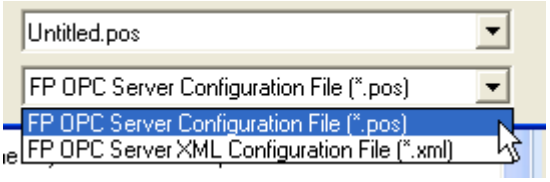
If no default project is specified in the options dialog, the most recently used project is automatically loaded when the client application starts the OPC server.

Save Project

1. **Select** File → Save **or** Save As… **or** **of the toolbar**



The file save dialog opens:


Untitled.pos
FP OPC Server Configuration File (*.pos)
FP OPC Server Configuration File (*.pos)
FP OPC Server XML Configuration File (*.xml)

2. **Specify the project file name and file type (binary (*.pos) or XML (*.xml) format)**

3. **Select [Save]**

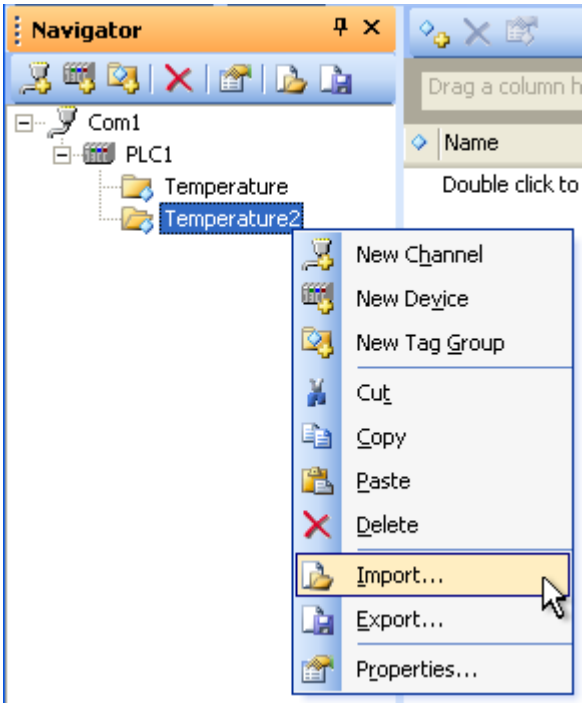
2.10.2 Import/Export Tag Data

In order to exchange, import, export or edit tag data, an export/import mechanism is available.

◆Procedure

Import tag data

1. **Select the device or tag group element for which you want to import data**
2. **Select "Import" from the pop-up menu, the File menu or the navigator's toolbar**

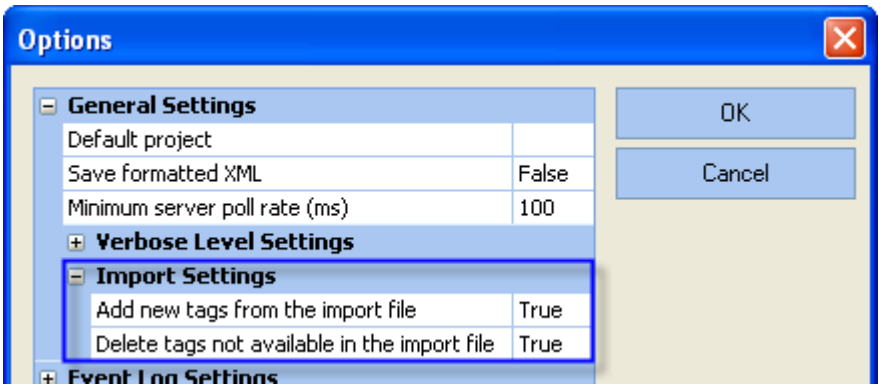


3. **In the "File Open" dialog, select the XML or CSV file you want to import**

According to the import settings under **Tools** → Options, you can select whether:

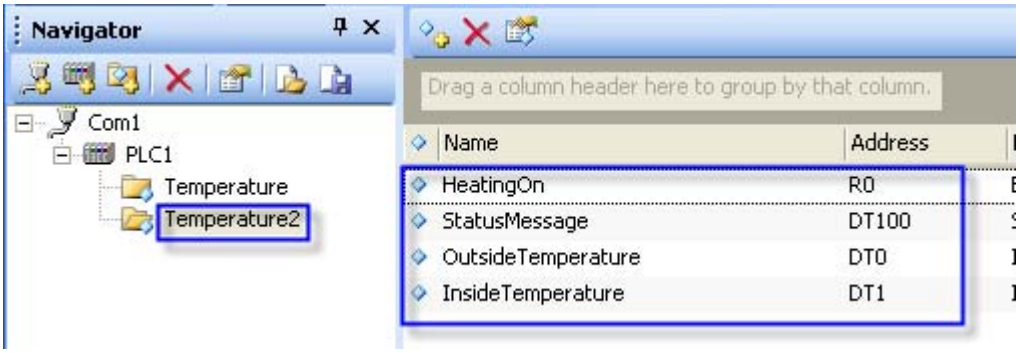
- tags available in the import file but not in the project are added to the project

- tags not available in the import file but in the project are deleted from the project:



Tags available in the import file and in the project will be updated.

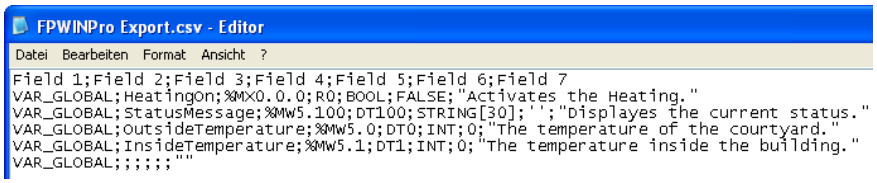
The data is imported into the selected device or tag group item.



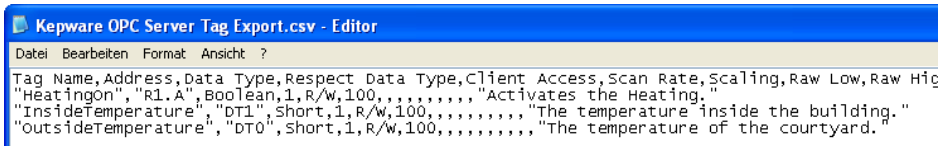
Import other file formats

The OPC Server can import global variables exported from FPWIN Pro or tag data exported from OPC Servers (Panasonic FP OPC Server, Kepware OPC Server, Beijers OPC Server). The various file formats are displayed below.

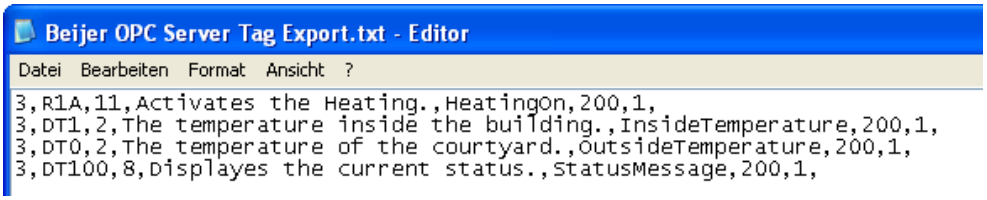
FPWIN Pro


FPWINPro Export.csv - Editor
Datei Bearbeiten Format Ansicht ?
Field 1;Field 2;Field 3;Field 4;Field 5;Field 6;Field 7
VAR_GLOBAL;HeatingOn;%MX0.0.0;R0;BOOL;FALSE;"Activates the Heating."
VAR_GLOBAL;StatusMessage;%MW5.100;DT100;STRING[30];'';"Displayes the current status."
VAR_GLOBAL;OutsideTemperature;%MW5.0;DT0;INT;0;"The temperature of the courtyard."
VAR_GLOBAL;InsideTemperature;%MW5.1;DT1;INT;0;"The temperature inside the building."
VAR_GLOBAL;;;;;;""

Kepware OPC Server

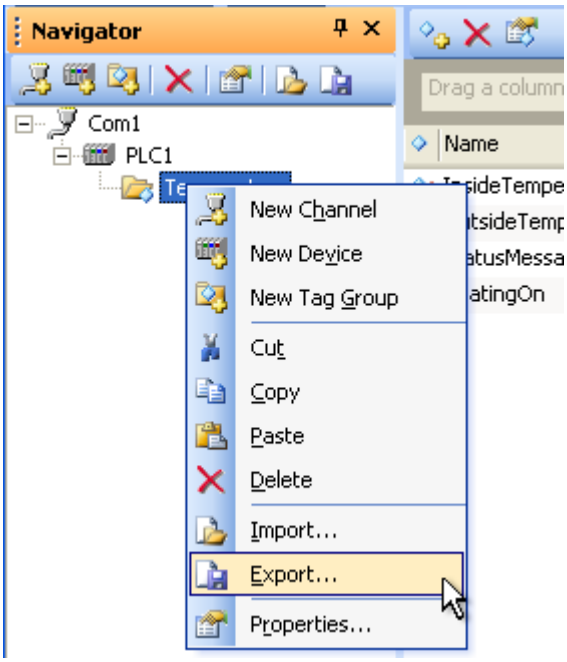

Kepware OPC Server Tag Export.csv - Editor
Datei Bearbeiten Format Ansicht ?
Tag Name,Address,Data Type,Respect Data Type,Client Access,Scan Rate,Scaling,Raw Low,Raw Hig
"HeatingOn","R1.A",Boolean,1,R/W,100,,,,,,,,,"Activates the Heating."
"InsideTemperature","DT1",Short,1,R/W,100,,,,,,,,,"The temperature inside the building."
"OutsideTemperature","DT0",Short,1,R/W,100,,,,,,,,,"The temperature of the courtyard."

Beijer OPC Server

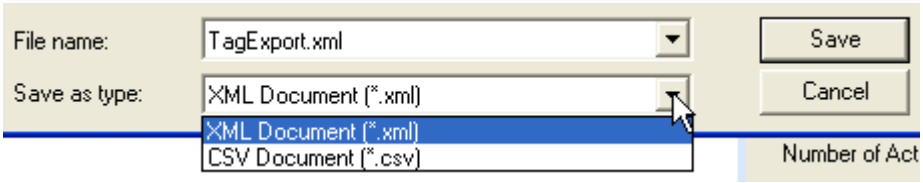

Beijer OPC Server Tag Export.txt - Editor
Datei Bearbeiten Format Ansicht ?
3,R1A,11,Activates the Heating.,HeatingOn,200,1,
3,DT1,2,The temperature inside the building.,InsideTemperature,200,1,
3,DT0,2,The temperature of the courtyard.,OutsideTemperature,200,1,
3,DT100,8,Displayes the current status.,StatusMessage,200,1,

Export tag data

1. **Select the device or tag group element you want to export**
2. **Select "Export " from the pop-up menu, the File menu or the navigator's toolbar**



3. **Specify the file name and type**



4. **Select where you wish to save the file**
5. **Select [Save]**

Now you can edit the file if desired, e.g. with a text editor:

Example for tag data exported in XML format

TemperatureTagExport.xml - Editor

Datei Bearbeiten Format Ansicht ?

```
k?xml version="1.0" encoding="UTF-8"?>
<FPOPCServerTags CompactMode="1" TotalElementCount="4">
        <Tags Name="InsideTemperature" AccessType="Read/Write" Address="DT1" Descripti
        <Tags Name="OutsideTemperature" AccessType="Read/Write" Address="DT0" Descript
        <Tags Name="StatusMessage" AccessType="Read/Write" Address="DT100" Description
        <Tags Name="HeatingOn" AccessType="Read/Write" Address="R0" Description="Activ
</FPOPCServerTags>
```

Example for tag data exported in CSV format

TemperatureTagExport.csv - Editor

Datei Bearbeiten Format Ansicht ?

```
Name;AccessType;Address;Description;DataType;PollRate;Scaling;Enabled;
InsideTemperature;Read/Write;DT1;The temperature inside the building.;Integer;100;0;1;
OutsideTemperature;Read/Write;DT0;The temperature of the courtyard.;Integer;100;0;1;
StatusMessage;Read/Write;DT100;Displayes the current status.;String;100;0;1;
HeatingOn;Read/Write;R0;Activates the Heating.;Boolean;100;0;1;
```

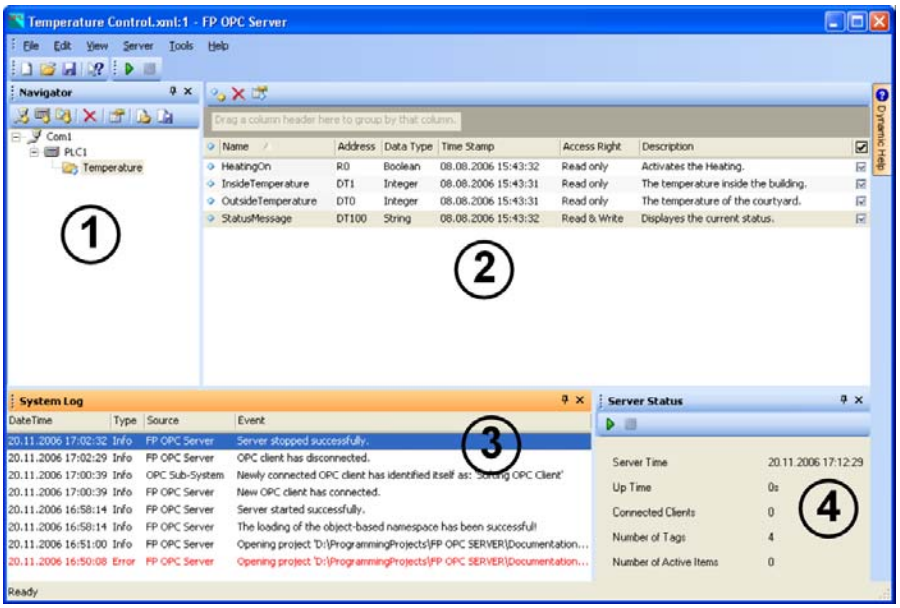
Chapter 3

Graphical User Interface (GUI)

3.1 Configure the Working Area

The FP OPC Server configuration user interface consists of various panes. All panes offer a pop-up menu and you can access most functions related to the panes with toolbar icons. For each item in the panes, context sensitive help can be displayed in the help pane (see page 53). Tool tips assist the user in understanding the topics when the cursor passes over them. You can dock all panes except the tag pane (see page 50) ②. You can close unneeded panes to enlarge the working area. Use the view menu (see page 47) to display the panes after they have been closed.

You can resize and move the entire application anywhere on the desktop. All user-defined layout settings, pane status and window position are saved upon closing and restored when the server is restarted.


Temperature Control.xml:1 - FP OPC Server
File Edit View Server Tools Help
Navigator
Com1
PLC1
Temperature
1
Name Address Data Type Time Stamp Access Right Description
HeatingOn R0 Boolean 08.08.2006 15:43:32 Read only Activates the Heating.
InsideTemperature DT1 Integer 08.08.2006 15:43:31 Read only The temperature inside the building.
OutsideTemperature DT0 Integer 08.08.2006 15:43:31 Read only The temperature of the courtyard.
StatusMessage DT100 String 08.08.2006 15:43:32 Read & Write Displayes the current status.
2
Dynamic Help
System Log
DateTime Type Source Event
20.11.2006 17:02:32 Info FP OPC Server Server stopped successfully.
20.11.2006 17:02:29 Info FP OPC Server OPC client has disconnected.
20.11.2006 17:00:39 Info OPC Sub-System Newly connected OPC client has identified itself as: 'Testing OPC Client'
20.11.2006 17:00:39 Info FP OPC Server New OPC client has connected.
20.11.2006 16:58:14 Info FP OPC Server Server started successfully.
20.11.2006 16:58:14 Info FP OPC Server The loading of the object-based namespace has been successful!
20.11.2006 16:51:00 Info FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation...
20.11.2006 16:50:08 Error FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation...
3
Server Status
Server Time 20.11.2006 17:12:29
Up Time 0s
Connected Clients 0
Number of Tags 4
Number of Active Items 0
4
Ready

① The navigator pane (see page 49) shows the hierarchical structure of channel, device and tag group elements. Elements of these types can be created and changed in this pane.

② The tag pane (see page 50) is where tag elements are created or updated.

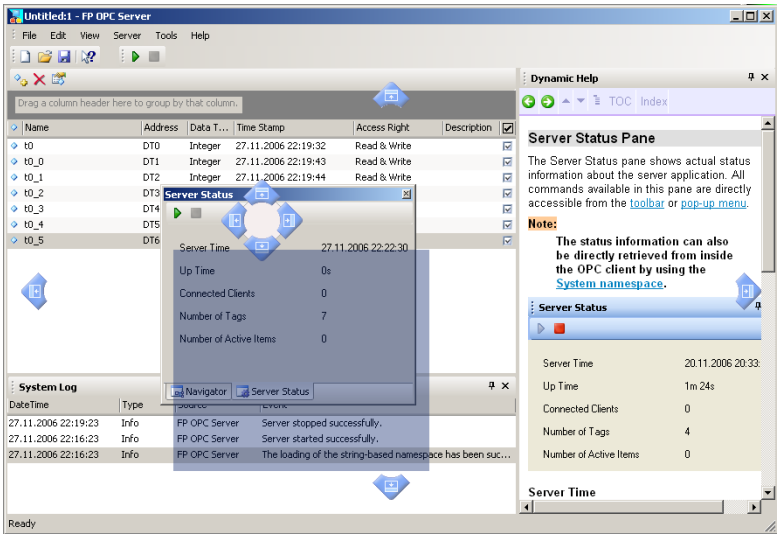
③ The system log pane (see page 51) shows the latest log messages, such as server status messages, client connections or connection timeouts and informs the user about these events.

④ The server status pane (see page 52) shows the server status information.

The help pane (see page 53) displays the online help. You can temporarily slide open the pane by moving the mouse over the icon. Click on the icon if you prefer the pane to stay visible.

Customize your working area

You can move or dock all panes except the tag pane anywhere in the window.

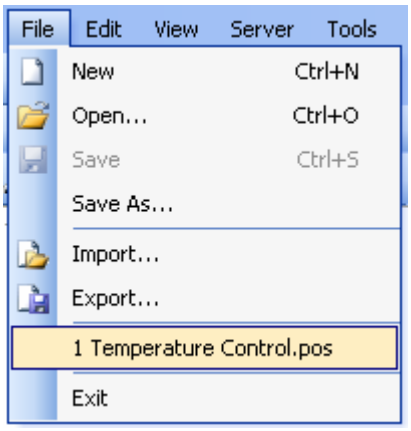

Untitled:1 - FP OPC Server
File Edit View Server Tools Help
Drag a column header here to group by that column.
Name Address Data T... Time Stamp Access Right Description
t0 DT0 Integer 27.11.2006 22:19:32 Read & Write
t0_0 DT1 Integer 27.11.2006 22:19:43 Read & Write
t0_1 DT2 Integer 27.11.2006 22:19:44 Read & Write
t0_2 DT3
t0_3 DT4
t0_4 DT5
t0_5 DT6
Server Status
Server Time 27.11.2006 22:22:30
Up Time 0s
Connected Clients 0
Number of Tags 7
Number of Active Items 0
Navigator
Server Status
System Log
DateTime Type
27.11.2006 22:19:23 Info FP OPC Server Server stopped successfully.
27.11.2006 22:16:23 Info FP OPC Server Server started successfully.
27.11.2006 22:16:23 Info FP OPC Server The loading of the string-based namespace has been suc...
Ready
Dynamic Help
TOC Index
Server Status Pane
The Server Status pane shows actual status information about the server application. All commands available in this pane are directly accessible from the toolbar or pop-up menu.
Note:
The status information can also be directly retrieved from inside the OPC client by using the System namespace.
Server Status
Server Time 20.11.2006 20:33:
Up Time 1m 24s
Connected Clients 0
Number of Tags 4
Number of Active Items 0
Server Time

3.2 Menu Names and Commands

The menu bar contains 6 menu names shown above. Please refer to the online help for detailed information under the keyword of the respective menu name.

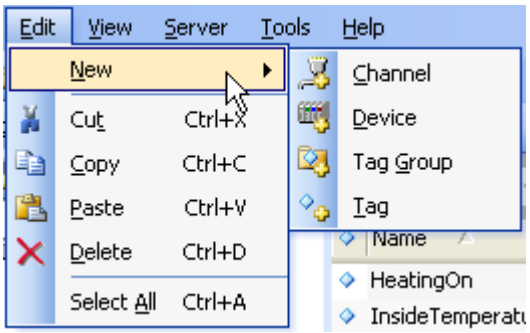
3.2.1 File Menu

The File menu offers access to all file and project operations.



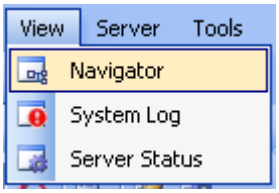
3.2.2 Edit Menu

The Edit menu allows you to create new channels, devices, groups and tags as well as execute the standard Windows editing commands: cut, copy, paste, delete and select all.



3.2.3 View Menu

Display the navigator (see page 49), system log (see page 51) and server status panes (see page 52) via this menu if they are hidden.



◆**NOTE**

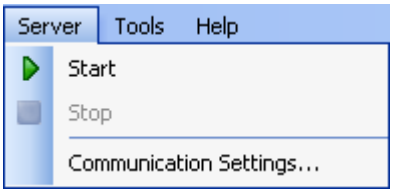
Display the help pane via the help menu (see page 47).

Further information:

Configure the working area (see page 44)

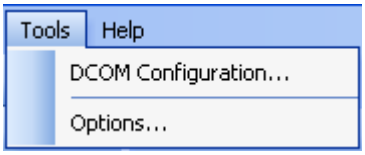
3.2.4 Server Menu

The Server menu contains commands to control the server and set global communication parameters. Use these communication settings to configure the MEWTOCOL compatibility namespace (see page 73).



3.2.5 Tools Menu

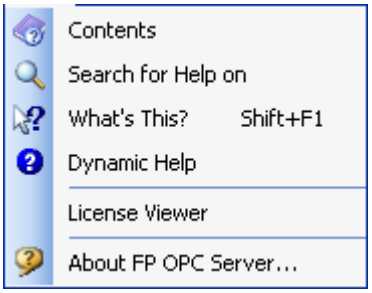
The Tools menu offers commands to start configuration and option dialogs.



3.2.6 Help Menu

The help menu contains commands to access the online documentation, which can displayed inside the application or as an external help window.

See also help pane (see page 53).



3.2.6.1 License Viewer

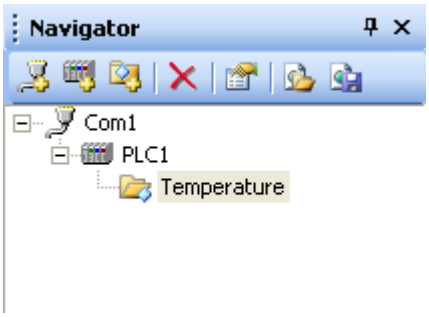
Select **Help** → **License Viewer** to open the license viewer (see page 17) dialog.

3.3 Panes

The FP OPC Server user interface contains 5 panes described as follows.

3.3.1 Navigator Pane

The navigator pane shows channel, device and tag group elements in a hierarchical structure. A wizard (see page 55) starts at each level to help you create new elements. To update existing elements, simply double-click the item; a wizard will appear in this case, too. You can directly access all commands available in this pane via the toolbar or pop-up menu.



Drag&Drop allows you to conveniently move device elements and tag group elements.

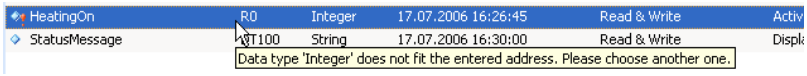
◆NOTE

On each hierarchical level, the name of the element has to be unique! For instance, only one channel element can be named "Com1".

For a detailed description of the navigator pane, please refer to the online help under the keyword "Navigator pane".

3.3.2 Tag Pane

The tag pane shows the **tag elements** in a list structure. A wizard (see page 57) is started to help you create new elements. To update existing elements, simply double-click the item to open the wizard. You can make direct changes to the tag elements in the list by placing the cursor in the list cell or selecting an item from the combo box lists. To ease handling of many items, multiple rows can be selected and changes applied to all selected elements. The list shows all properties of the tag element in a clearly arranged manner. All commands available in this pane are directly accessible from the toolbar or pop-up menu.

Column number	Column Header	Explanation
①		Shows the status of the element: correct warning error Hint: check the tool tip for help on configuring the element correctly. 
②	Name	Shows the tag's name **Note: Each tag element that is child to the same parent must have a unique tag name, e.g. only one tag can be named "OutsideTemperature".**
③	Address	Shows the element's address (see page 76)
④	Data type	Shows the element's data type (see page 77)
⑤	Time stamp	Displays the creation time and date
⑥	Access Right	Shows the access rights of the tag
⑦	Description	Allows you to enter a description for the tag
⑧		You can disable elements by deactivating this check box (multiple selection with <Ctrl> and/or <Shift>). Disabled elements are not visible inside the OPC client.

Arrange elements in meaningful groups

Enabled
Name
Address
Data Type
Time Stamp
Access Right
Description
Disabled Tags
HeatingOn R0 Boolean 08.08.2006 15:43:32 Read & Write Activates the Heating.
StatusMessage DT100 String 08.08.2006 15:43:32 Read & Write Displayes the current status.
Enabled Tags
InsideTemperature DT1 Integer 08.08.2006 15:43:31 Read & Write The temperature inside the building.
OutsideTemperature DT0 Integer 08.08.2006 15:43:31 Read & Write The temperature of the courtyard.

For example, you wish to group elements by their enabled or disabled state. Simply drag the column ⑧ header inside the field "Drag a column header …" ⑨.

You can also sort the list of tag items by simply clicking on the column header ⑩.

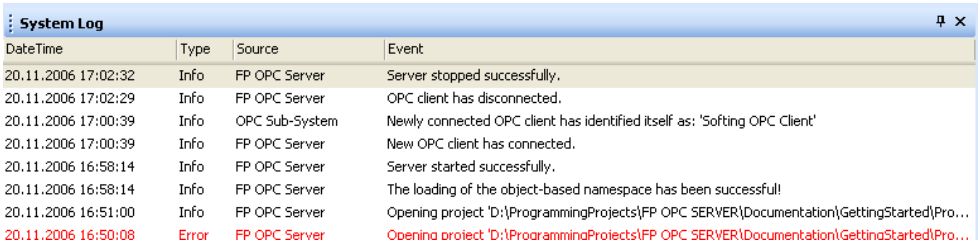
◆NOTE

To deselect multiple selected rows, simply click into column ①, ② or ⑤. Only the currently selected row will remain selected.

For a detailed description of the tag pane, please refer to the online help under the keyword "Tag pane".

3.3.3 System Log Pane

The system log pane displays information, warnings and error event messages.


System Log
DateTime Type Source Event
20.11.2006 17:02:32 Info FP OPC Server Server stopped successfully.
20.11.2006 17:02:29 Info FP OPC Server OPC client has disconnected.
20.11.2006 17:00:39 Info OPC Sub-System Newly connected OPC client has identified itself as: 'Softing OPC Client'
20.11.2006 17:00:39 Info FP OPC Server New OPC client has connected.
20.11.2006 16:58:14 Info FP OPC Server Server started successfully.
20.11.2006 16:58:14 Info FP OPC Server The loading of the object-based namespace has been successful!
20.11.2006 16:51:00 Info FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\GettingStarted\Pro…
20.11.2006 16:50:08 Error FP OPC Server Opening project 'D:\ProgrammingProjects\FP OPC SERVER\Documentation\GettingStarted\Pro…

For example, information about server start and stop events, client connects and disconnects are data time-outs are displayed. While the server application is running, log information is written into a log file. The log file path can be changed under Tools → Options.

See also: Configure the working area (see page 44).

3.3.4 Server Status Pane

The server status pane shows actual status information about the server application. All commands available in this pane are directly accessible from the toolbar or pop-up menu.

◆NOTE

The status information can also be directly retrieved from inside the OPC client by using the System namespace (see page 72).

Server Time

The server time indicates the actual date and time of the server hosting system.

Up Time

The Up Time property is available when the server is running and displays how long the server has been up in "xxd(ays) xxh(ours) xxm(inutes) xxs(econds)".

Connected Clients

The number of connected OPC clients is displayed.

Number of Tags

"Number of Tags" shows the total number of tags created within all devices and tag groups.

◆NOTE

All tags including disabled elements are counted.

Number of Active Items

The number of tags actively monitored within any of the OPC clients (created as Items) is displayed.

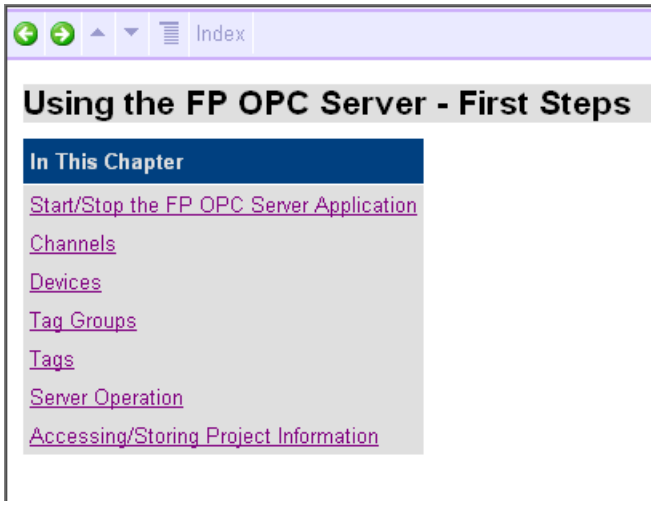
◆NOTE

The total number of tag instances is counted; if one client monitors the same element twice or two clients monitor the same element, the property counts both elements.

For a detailed description of the Server status pane, please refer to the online help under the keyword "Server status pane".

3.3.5 Help Pane

The help pane can be docked and reacts context-sensitively to the current mouse or cursor position. You can “pin” it open or have it slide open and closed by passing the cursor over it.



See also: Help menu (see page 47).

3.4 Toolbars

Each of the panes (see page 49) in the FP OPC Server's configuration user interface (see page 43) contains a toolbar that allows you easy access to all commands available within the pane.

For a detailed description of the toolbar functions, please refer to the online help under the keyword "Toolbars".

3.5 Wizard

To simplify creating and modifying namespace elements (see page 69), a wizard-like configuration dialog has been implemented. The wizard is opened to help you create a new element when you have double-clicked a dummy element (see also dummy element of tag pane). You can likewise modify an existing element's properties by double-clicking on the element. The wizard also opens when you execute similar commands via the menu, pop-up menu or toolbar (see page 54) icon.

Enter text

On the left side of the dialog text input fields, you must enter an element name, for example. If the text you have entered is wrong, the field turns red and a tool tip assists you with an error message.

Buttons

On the right side, the buttons, such as [OK], [Cancel] and - if available - the navigation buttons [Next] and [Previous] can be found. By pressing [Next], the next page (also accessible via a tab flag) is displayed.

Help

At the bottom of the dialog, the omnipresent, context-sensitive online help can be found embedded. By selecting another control, for instance the next edit field, the help automatically displays the corresponding help page.

3.5.1 New Channel Wizard

When you create or modify a channel element, the wizard is started in "(new) channel mode". You can view or modify an existing element, or create a new element.

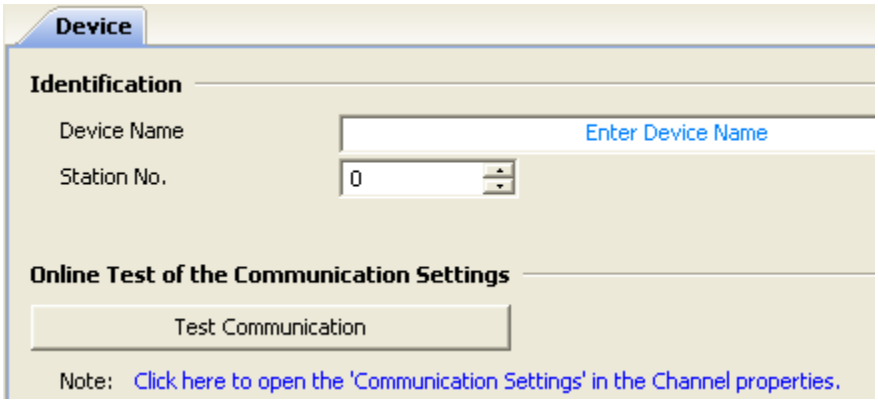
The first page identifies the channel element. The channel's name is specified here.

On the second page, you select the I/O driver. If you have selected the MEWNET driver, a third page allows to you to edit the communication settings.

For detailed information, please refer to the online help under the keyword "New Channel Wizard".

3.5.2 New Device Wizard

When you create or modify a device element, the wizard is started in "(new) device mode". You can view or modify an existing element, or create a new element.

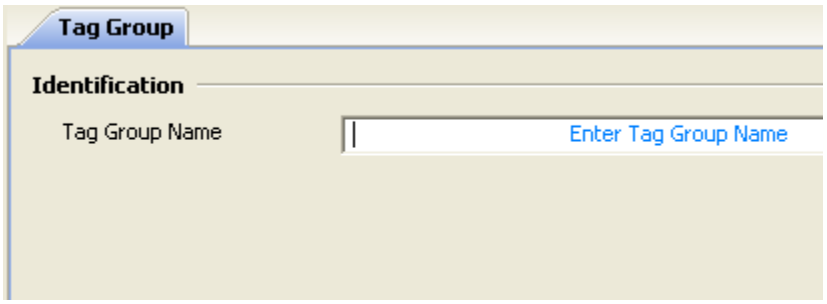


The wizard shows the identification page of the device element. The device's name and station number are specified here.

For detailed information, please refer to the online help under the keyword "New Device Wizard".

3.5.3 New Tag Group Wizard

When you create or modify a tag group element, the wizard is started in "(new) tag group mode". You can view or modify an existing element, or create a new element.

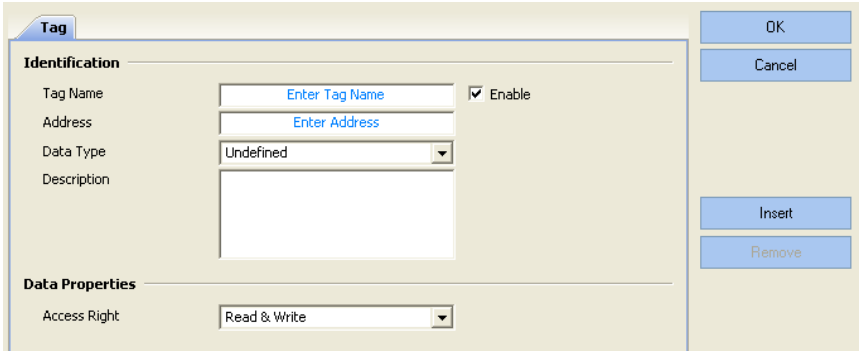


The wizard shows the identification page of the tag group element. The tag group's name is set here.

For detailed information, please refer to the online help under the keyword "New Tag Group Wizard".

3.5.4 New Tag Wizard

When you create or modify a tag element (see page 50), the wizard is started in "(new) tag mode". You can view or modify an existing element, or create a new element.



The wizard shows the identification page of the tag element. The tag's name, address, data type, access type and enabled state is set here.

For detailed information, please refer to the online help under the keyword "New Tag Wizard".

3.6 Project Information Input/Output

3.6.1 Load/Save The Project

To save a new project or change an existing project, data can be stored in a project file on the hard disk in *.pos or *.xml format.

For further information on loading and saving project data, please refer to Open/Save Project (see page 36).

3.6.2 Import/Export Tag Information

Tag group and tag elements can be exported to an XML (*.xml) or CSV (*.CSV) file. The CSV file is compatible with the GVL CSV export file of FPWIN Pro. Project data (tags) can also be exchanged with other OPC server providers. For further information, please refer to: Import/Export Tag data (see page 38).

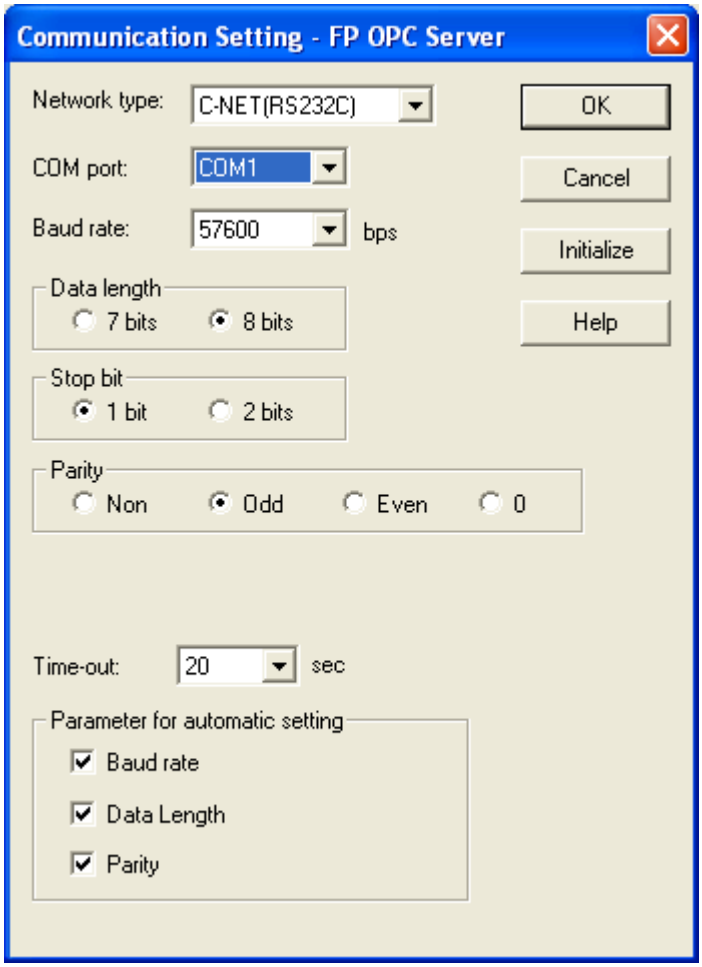
3.7 Communication Settings Dialog

You can set communication parameters if you are using the MEWNET driver or if you want to configure the MEWTOCOL compatibility namespace (see page 73). The following communication types are provided:

- Serial
- Modem
- Ethernet
- USB

3.7.1 Serial Communication Settings

If "C-Net (RS232)" is selected as the network type, the following dialog appears.



Parameter	Description
COM Port	Select from COM1-COM5. (Default: COM1)

Parameter	Description
Baud Rate	Depending on the PLC used, choose a baud rate between 1200 and 115200 for communication between PLC and PC. Default is 9600 bps.
Data length	Select either 7 bits or 8 bits. (Default: 8 bits)
Stop Bit	Select either 1 bit or 2 bits. (Default: 1 bit)
Parity	Select from None, Odd, and Even. (Default: Odd)
Time-out	Set the time allowed (0-60 sec.) for communication to be established with the PLC. (Default: 5 sec.)
Parameter for automatic setting:	Activate the check box for the matching condition you want to search for when the communication parameters differ from the PLC. (Default: all check boxes are activated.) If no check box is activated, FPWIN Pro will not automatically search for suitable communication parameters.

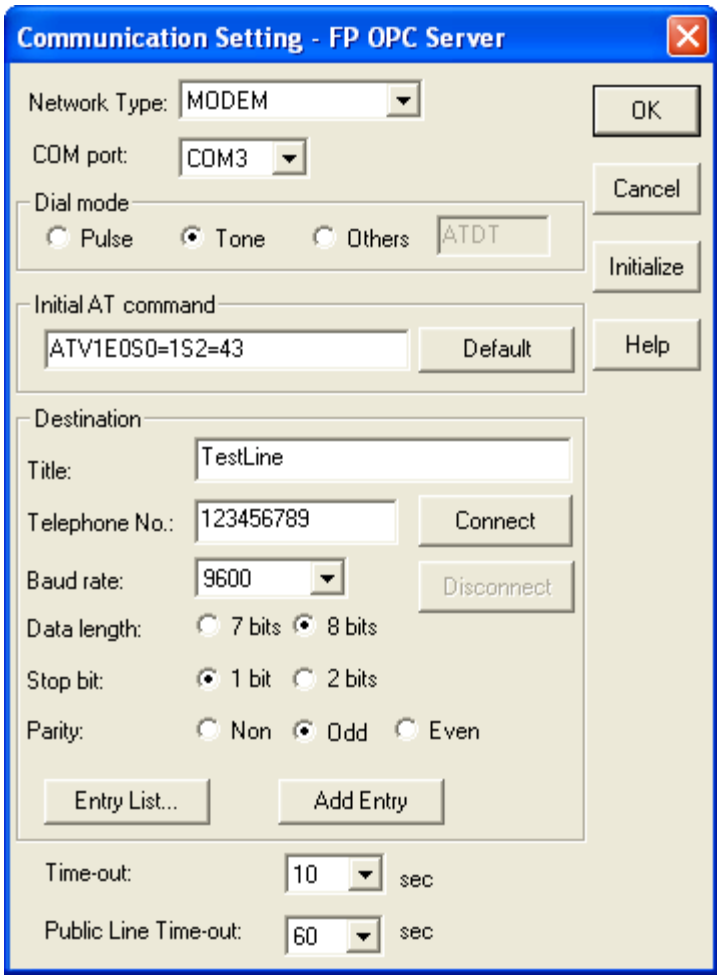
◆**NOTE**

If the check box for "Parameter for automatic setting" is not activated, FP OPC Server will not automatically search for suitable communication parameters.

You can also connect to a PLC network. The settings to be made depend on the PLC type and kind of connection. The FP OPC Server automatically searches for the suitable parameters unless you have deactivated this feature. Please also refer to the corresponding hardware manuals.

3.7.2 Modem Communication Settings

If you select "MODEM" as the network type, the following dialog appears:



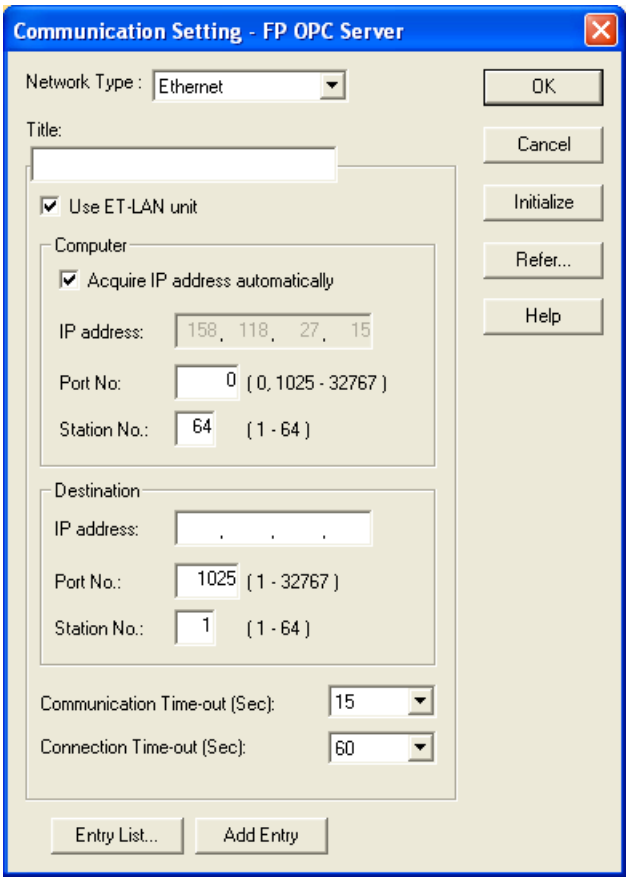
Parameter	Description	Default
COM Port	Select from COM1-COM5 via which the modem is connected.	COM1
Dial mode	Select the dial mode (pulse, tone or self-defined) used by the modem.	Pulse
Initial AT command	A modem manufacturer database is available which lists many standard modem models with their initialization strings.	ATV1E0S0=1S2=43
Title	Enter a title for the communication settings set.	
Telephone number	Enter the telephone number to dial.	
[Connect]	Click [Connect] to establish the connection.	
[Disconnect]	Click [Disconnect] to terminate a previously started connection.	
Baud Rate	Depending on the modem used, choose a baud rate between 1200 and 115200 for communication between PLC and PC.	9600bps

Parameter	Description	Default
Data length	Select either 7 bits or 8 bits.	8bits
Stop Bit	Select either 1 bit or 2 bits.	1bit
Parity	Select from None, Odd or Even.	Odd
[Add Entry]	Click [Add Entry] to save the connection in the entry.	
[Entry List]	When clicking on [Entry List] you can select, modify or delete an entry made before.	
Time-out	Set the time allowed (0-60s) for communication to be established with the PLC.	5s
Public Line Time-out	Set the time allowed (0-60s) for communication to be established to the communication partner.	

The FP OPC Server can communicate with a peripheral controller that is connected via modem. When the server communicates with a Panasonic PLC, a modem can be attached directly to the CPU (except for FP1 C14/C16).

3.7.3 Ethernet Communication Settings

If "Ethernet" is selected as "Network type", the following dialog appears.



Set the communication parameters using Ethernet according to your Hardware. This connection is based on TCP/IP protocol.

Ensure you are familiar with IP addresses, ET-LAN units and Ethernet before using this connection. Especially when using the ET-LAN unit, understand the "ET-LAN SYSTEM Technical Manual" fully, and use the same settings on your computer.

Set or change the following parameters if necessary:

Parameter		Description
Use ET-LAN unit		Check the checkbox when you use the ET-LAN unit. Do not check the checkbox when using the Ethernet-RS232C converter, etc., for example.
Title		Enter a title up to 38 characters long.
Computer:	**IP address**	Set automatically. If not displayed, set properties of TCP/IP from network setting in control panel. (The setting procedure differs depending on the operating system used. Please refer to the Manuals and Help of OS.)
	Port No.	Specify a value between 1025 and 32767 in decimal format (default: 1025). The Port No. for the IP address must be a unique, i.e. it cannot be used twice on your computer.
	Station No.	Specify a value between 1 and 64 in decimal format (default: 64). Specify a Station No. different from the destination Station No. (PLC) that follows. (If ET-LAN unit is not used, Station No. is ignored.)
Destination:	**IP address**	Specify IP address of destination (PLC) to communicate with.
	Port No.	Specify a value between 1 and 32767 in decimal format (default: 1025) different from above.
	Station No.	Specify a value between 1 and 64 in decimal format (default: 1). Specify a Station No. different from the computer's Station No. above. (If ET-LAN unit is not used, Station No. is ignored.)
Communication Time-out		Specify a value between 1 and 950 seconds (default: 10).
Connection Time-out		Specify a value between 1 and 180 seconds (default: 60).

Descriptions of Buttons:

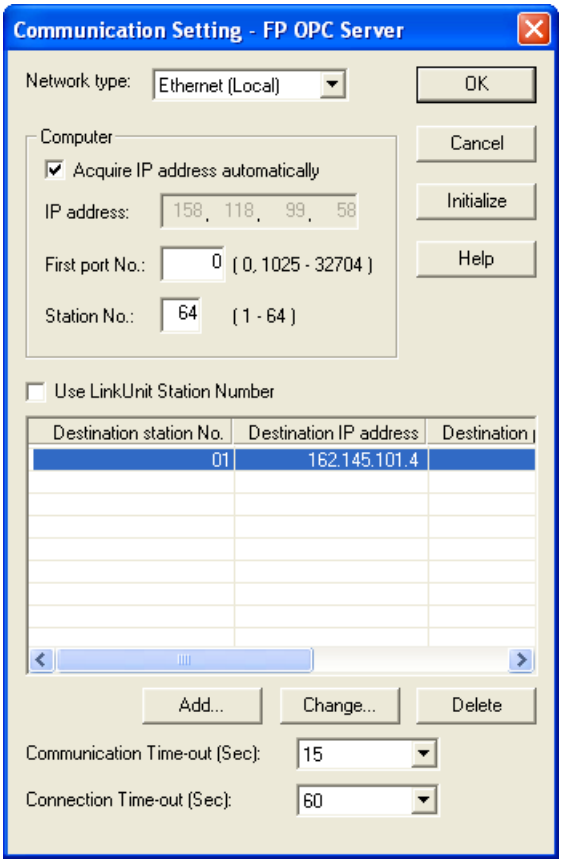
[OK]	Click [OK] to save the communication settings; the current settings are not entered into the Entry List. If you want to enter them into the Entry List, click [Add Entry] before clicking [OK].
[Initialize]	To reset the current setting's parameters to the initial settings, click [Initialize].
[Refer...]	When another program (an PEW application) is communicating with the PLC via the Ethernet and you want to connect to the same PLC, click [Refer...]. Then you can connect to the PLC easily by selecting the task in the TCP/IP Run List. No complicated procedure is required. Refer to the other task's settings for details.
[Entry List...]	To reuse parameters registered in the Entry List, click [Entry List...]
[Add Entry]	To add the current setting parameters to the Entry List, click [Add Entry].

3.7.4 Ethernet (Local) Communication Settings

The "Ethernet (Local) Communication Settings" dialog is only available via **Server → Communication Settings** and can be configured using the MEWTOCOL OPC Server Compatibility Namespace (see page 73) only.

◆NOTE

You can only change the communication parameters for the OPC Server if the OPC subsystem has not been started (see Start/Stop the FP OPC Server Application (see page 20)).



Set the communication parameters using Ethernet according to your Hardware. This connection is based on TCP/IP protocol.

Ensure you are familiar with IP addresses, ET-LAN units and Ethernet before using this connection. Especially when using the ET-LAN unit, understand the "ET-LAN SYSTEM Technical Manual" fully, and use the same settings on your computer.

Set or change the following parameters if necessary:

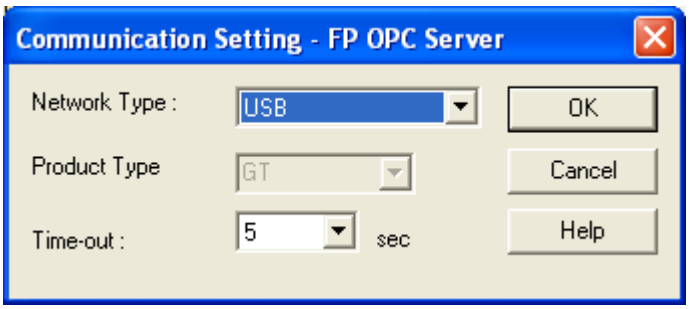
Parameter		Description
Computer:	**IP address**	Set automatically. If not displayed, set properties of TCP/IP from network setting in control panel. (The setting procedure differs depending on the operating system used. Please refer to the manuals and help of the OS.)
	Port No.	Specify a value between 1025 and 32767 in decimal format (default: 1025). The Port No. for the IP address must be a unique, i.e. it cannot be used twice on your computer.
	Station No.	Specify a value between 1 and 64 in decimal format (default: 64). Specify a Station No. different from the destination Station No. (PLC) that follows. (If ET-LAN unit is not used, Station No. is ignored.)
Use LinkUnit Station Number		**Activated**: only one entry for a destination is possible **Deactivated**: you get access to the destination entry list to re-use parameters already entered
Destination:	**Use ET-LAN unit**	Check the checkbox when you use the ET-LAN unit. Do not check the checkbox when using the Ethernet-RS232C converter, etc., for example.
	IP address	Specify IP address of destination (PLC) to communicate with.
	Port No.	Specify a value between 1 and 32767 in decimal format (default: 1025) different from above.
	Station No.	Specify a value between 1 and 64 in decimal format (default: 1). Specify a Station No. different from the computer's Station No. above. (If ET-LAN unit is not used, Station No. is ignored.)
Communication Time-out		Specify a value between 1 and 950 seconds (default: 10).
Connection Time-out		Specify a value between 1 and 180 seconds (default: 60).

Descriptions of Buttons:

[OK]	Save the communication settings.
[Initialize]	To reset the current setting's parameters to the initial settings, click [Initialize].
If "Use LinkUnit Station Number" is deactiavated	
[Add]	Add a new entry to the entry list.
[Change]	Select a line and click [Change] to change the parameters of the selected entry.
[Delete]	Select a line and click [Delete] to delete the selected entry.

3.7.5 USB Communication Settings

If "USB" is selected as the network type, the following dialog appears. Using this setting you can configure transparent PLC communication via the USB port of a GT panel.

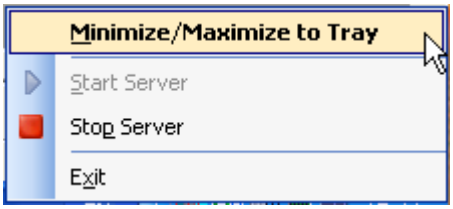


Specify a time-out value between 1s and 60s (default 5s).

3.8 System Tray

When the server application is started, a tray icon appears in the window's system tray. The icon offers easy access to the main server functions, such as starting and stopping the server and maximizing or exiting the application.

In case of an automatic start, i.e. the OPC client starts the FP OPC Server, the OPC Server is minimized to the tray only. To maximize the Configuration User Interface, either double-click on the FP OPC Server tray icon or select "Minimize/Maximize to Tray" from the System Tray menu.

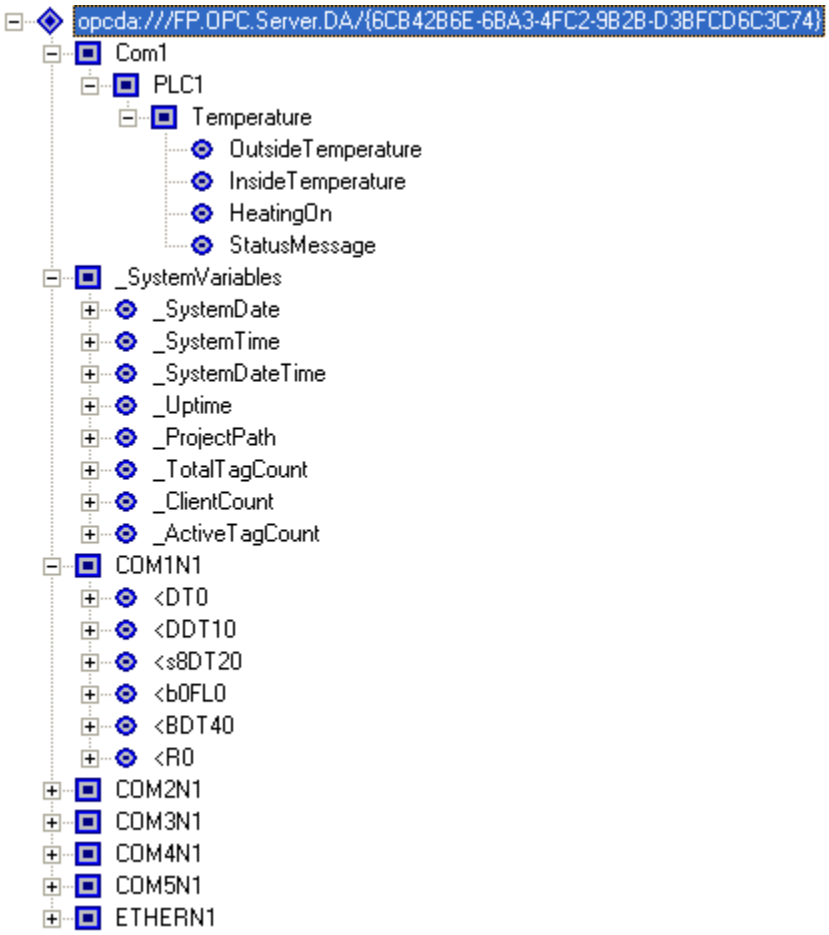


Chapter 4

Namespaces

4.1 Introduction to Namespaces

A namespace is a hierarchical tree structure of elements. Namespaces are set up within the server and can be browsed for with an OPC client application.



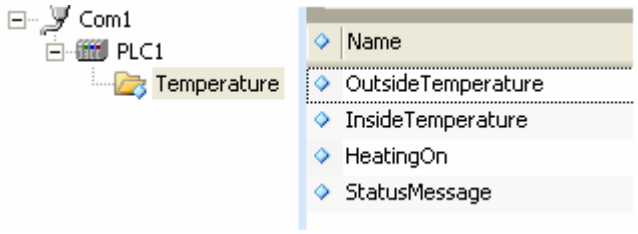
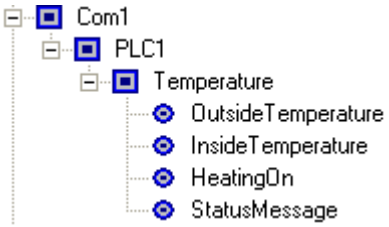
Three different namespaces can be built within the server:

1. User-defined manual namespace (see page 71)
2. System status namespace (see page 72)
3. MEWTOCOL OPC Server compatibility namespace (see page 73) that ensures backward compatibility with the previous MEWTOCOL OPC Server.

4.2 Static, Manually Defined Namespace

The static namespace has to be defined by the user in the FP OPC Server configuration user interface as described in the previous chapters (left hand image).

The root elements in the tree are the channel elements, which embody the means of communication, i.e. the communication line.

Server side	Client side
	

Each channel element can contain device elements, which represent the devices where the data sources are located. On the next level, tag group combine elements in a way that makes sense for the particular application. The leafs of the tree are the tag elements (see page 50). These elements directly represent the data sources offered to the OPC client application.

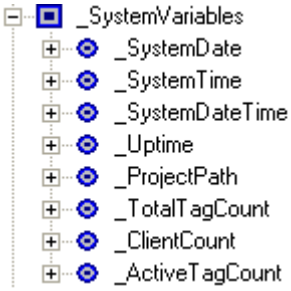
On the right, the namespace representation within the OPC client can be seen.

◆NOTE

You cannot use elements named COMXXNXX or ETHERNXXNXX (e.g. COM1N64) in accordance to the regulations of MEWTOCOL OPC Server Compatibility Namespace (see page 73).

4.3 System Status Namespace

The system status namespace provides the client application with general feedback about the server.



For a detailed description of the read only tags, please refer to the online help under the keyword "System Status Namespace".

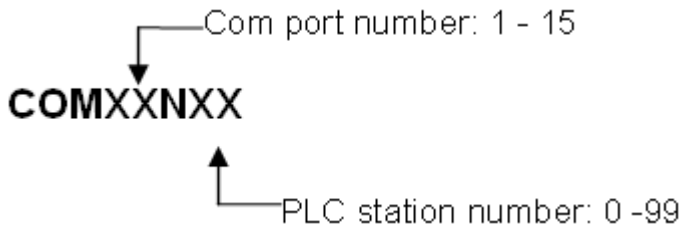
4.4 MEWTOCOL OPC Server Compatibility Namespace

The previous OPC server, the MEWTOCOL OPC Server, did not support the definition of a static namespace (see page 71). The Tags are accessed by defining the access path according to a certain syntax.

In order to be backward compatible, the FP OPC Server supports the MEWTOCOL OPC Server namespace. You must define the communication settings beforehand in the communication settings dialog (see page 59) that opens via **Server** → **Communication Settings**.

You must specify the communication channel on the first layer:

COM (serial and modem) communication

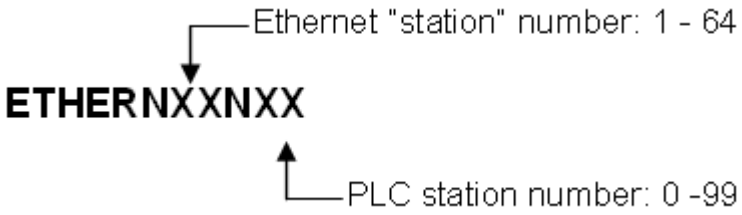


XX The first two placeholders should specify the communication port to be used.

N Optional. For C-NET must be "N".

XX Optional. The second two placeholders specify the PLC station number if the PLC is connected via C-NET.

Ethernet communication



◆NOTE

For further information, please refer to Panasonic FP PLC Network Types (see page 79).

The second layer represents the Tag layer directly. Here, the item corresponding to the data source is created according to the following syntax conventions:

<[1][2][3][4]Address where:

Optional	Description	Values	Notes
[1]	Specifies a memory bank number	**b0** to **b15**	If empty, no bank is specified.
[2]	- - Specifies the number of numerical data words. - - Specifies the number of character data words.	**w1** (1 word) **w2** (double word) **s1** to **s256**	If empty, 1-word data types are used.
[3]	Specifies the Item as a real or BCD value.	Real: **f** BCD: **B**	If empty, the value is displayed as decimal
[4]	Specifies double word.	**D**	If empty, 1-word data types are used. **D** overrides **w1** specified in [2]

◆NOTES

- **In contrast to the MEWTOCOL OPC Server, modem connections can also be used via COMXXNXX nodes.**
- **This namespace can also be used to dynamically create item instances within the OPC client application.**

Chapter 5

Appendix

5.1 Panasonic Addresses

Panasonic FP Series PLCs use addresses from which you can read data or to which you can write data. Both bit and word addresses are used.

5.1.1 Special Internal Relays

Special internal relays turn on and off under special conditions. The on and off states are not output externally. Writing is not possible with the FP OPC Server, a programming tool or an instruction.

◆REFERENCE

For further information on special internal relays, please refer to the hardware manual of your Panasonic PLC.

5.1.2 Special Internal Data Registers

Special data registers are one word (16-bit) memory areas which store specific information. Writing is not possible with the FP OPC Server, a programming tool or an instruction.

◆REFERENCE

For further information on special data registers, please refer to the hardware manual of your Panasonic PLC.

5.2 Panasonic Data Types

Panasonic's FP OPC Server supports several data types described hereafter.

Undefined - Undefined Data Type

An undefined data type is selected per default. If this data type is not changed, the OPC Server automatically adopts the data type according to the address of the variable.

Boolean - Boolean Data Type (1-bit)

Variables of the data type BOOL are binary variables. They can either have the value 0 or 1, and are 1 bit long.

Condition	Meaning	Explanation
0	FALSE	The variable is switched off, i.e. it is not set.
1	TRUE	The variable is switched on, i.e. it is set.

Integer - Integer Data Type (16-bit)

Variable values of the data type Integer are natural numbers without decimal places. Integer values range from -32768 to 32767.

DInteger - Double Integer Data Type (32-bit)

Variable values of the data type DInteger are natural numbers without decimal places. DInteger values range from -2147483648 to 2147483647.

Word - Word Data Type (16-bit)

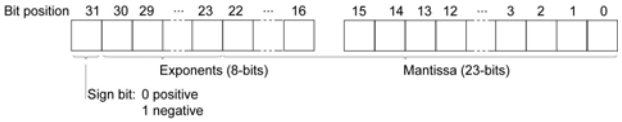
A variable of the data type Word consists of 16 binary states. The switching states of 16 in/outputs can be combined in one word.

DWord - Double Word Data Type (32-bit)

A variable of the data type DWord consists of 32 binary states. The switching states of 32 in/outputs can be combined in one DWord.

Real - Real Data Type (32-bit)

Variables of the data type REAL consist of real numbers or floating point constants and can include up to seven effective digits. The mantissa consists of 23 bits and the exponent of 8 bits (based on IEEE754).



REAL values range between -3.402823*E38 to -1.175494*E-38, 0.0, +1.175494*E-38 to +3.402823*E38.

String - String Data Type (Variable Length)

The data type STRING consists of a series of up to 255 ASCII characters. All ASCII characters are considered as characters.

BCD - Binary Coded Decimal Data Type (16-bit)

The BCD represents a code scheme for numbers that allows base-ten computer calculation instead of the more common base two. BCD manipulation preserves accuracy by reducing round-off errors. BCD encoding is performed by using a four-digit binary number to encode each digit of the base ten number.

BCD	Decimal
0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9

LBCD - Long Binary Coded Decimal Data Type (32-bit)

The encoding of the LBCD is similar to the BCD (see page 78) data type, but instead of being 16 bits long, the LBCD consists of 32 bits.

5.3 Panasonic FP PLC Network Types

A Panasonic FP Series PLC can be connected to the PC in various ways. The PLC can be connected using the serial port (see page 79) or Ethernet (see page 80).

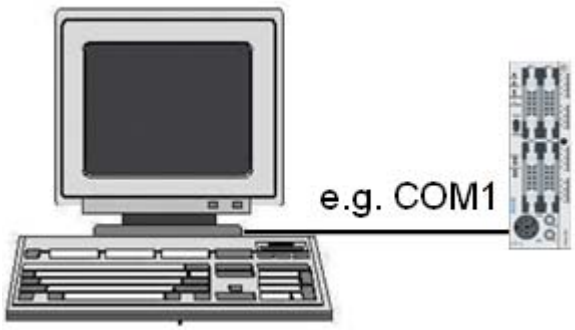
◆REFERENCE

For further information on the different network types and how to connect and to wire the PLC, please refer to the appropriate hardware manual.

5.3.1 Serial Network

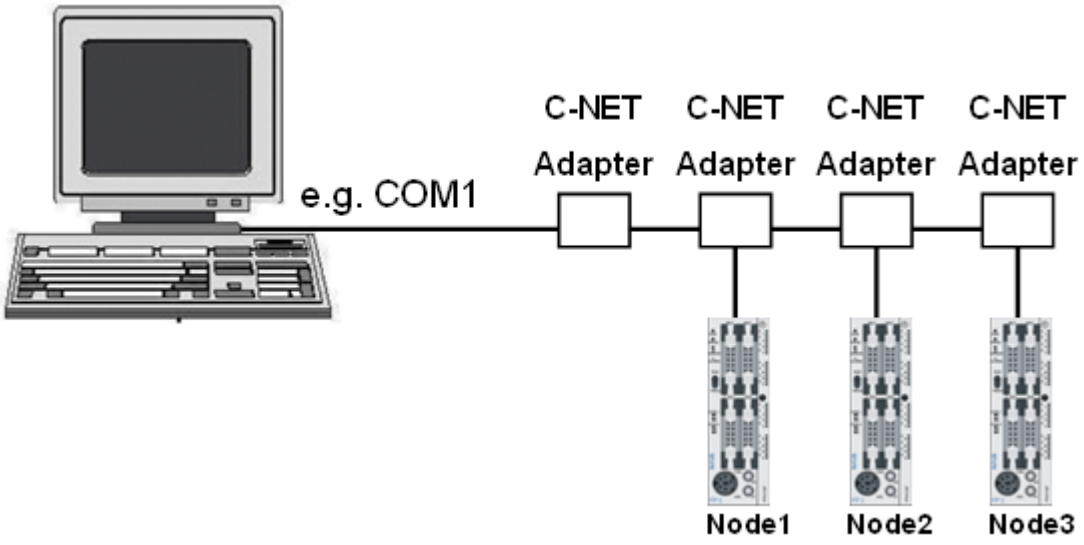
Direct connection

The PLC is directly connected to the PC using the serial communication line.



C-NET adapter connection

A maximum of 99 PLCs (FP-Sigma PLCs) can be connected to a single PC.



The access path is for example (using the MEWNET compatibility syntax):

- Node1: COM1N1
- Node2: COM1N2
- Node3: COM1N3

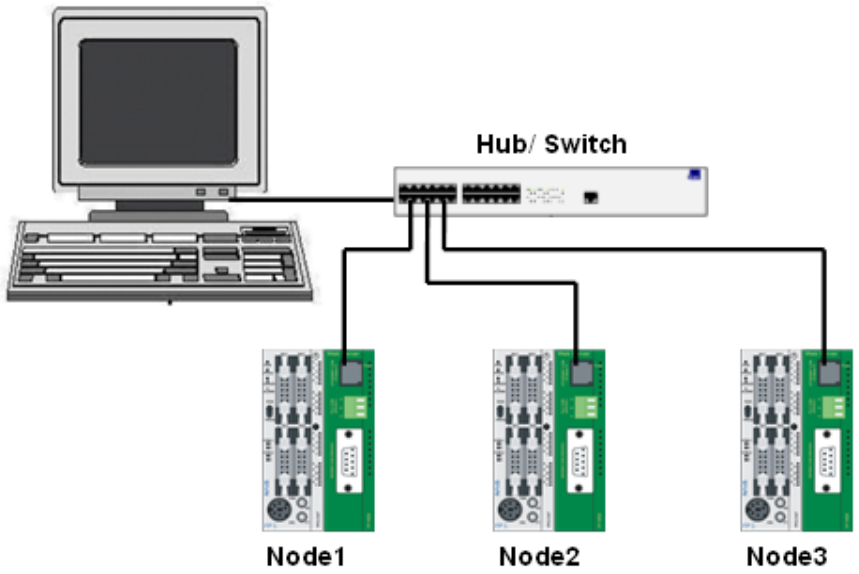
◆**NOTE**

This version of the FP OPC Server does not support the MEWNET W/W2 remote access.

5.3.2 Ethernet Network

PLCs can be connected to the PC via Ethernet.

Each PLC is connected to a HUB or SWITCH



The access path is for example (using the MEWNET compatibility syntax):

- Node1: ETHERN1
- Node2: ETHERN2
- Node3: ETHERN3

◆**NOTE**

This version of the FP OPC Server does not support the MEWNET W/W2 remote access.

5.4 DCOM Configuration

Windows XP SP2

Starting with Windows XP Service Pack 2, Microsoft implemented a new security strategy. This step, amongst others, was needed to reduce XP's vulnerability to dangerous attacks from outside (e.g. the Internet). This was realized by shielding the computer from the network side and various other improvements.

In order to access the OPC Server from a client not installed on the same machine, DCOM (see page 4) communication has to be set up. You have to adapt two areas of the Windows XP operating system:

- the firewall (network shielding) settings
- the DCOM security settings

The first step has already been done during the installation phase. After installing the FP OPC Server, you will find three new firewall rules: "DCOM Port 135 TCP", "OPC Enumeration Service" and "FP OPC Server 1". These rules enable the firewall to accept incoming requests to the FP OPC Server.

DCOM enhancements

The DCOM settings specify the limits and security constraints, such as launch and access permissions for the FP OPC Server. Launch permissions hereby specify the users who are allowed to start an application. Access permissions grant specified users access to the application.

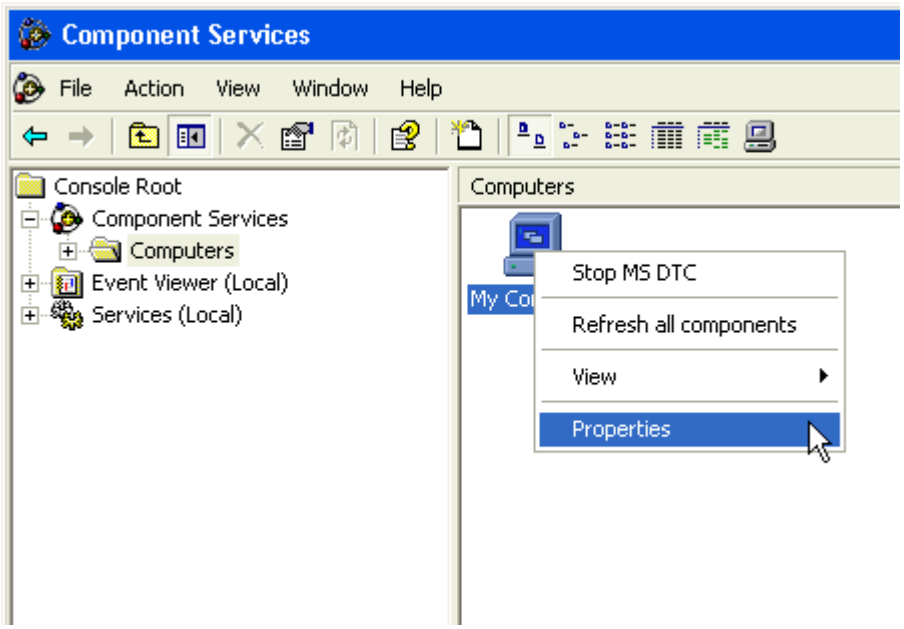
◆Procedure

1. **Select** Tools → DCOM configuration

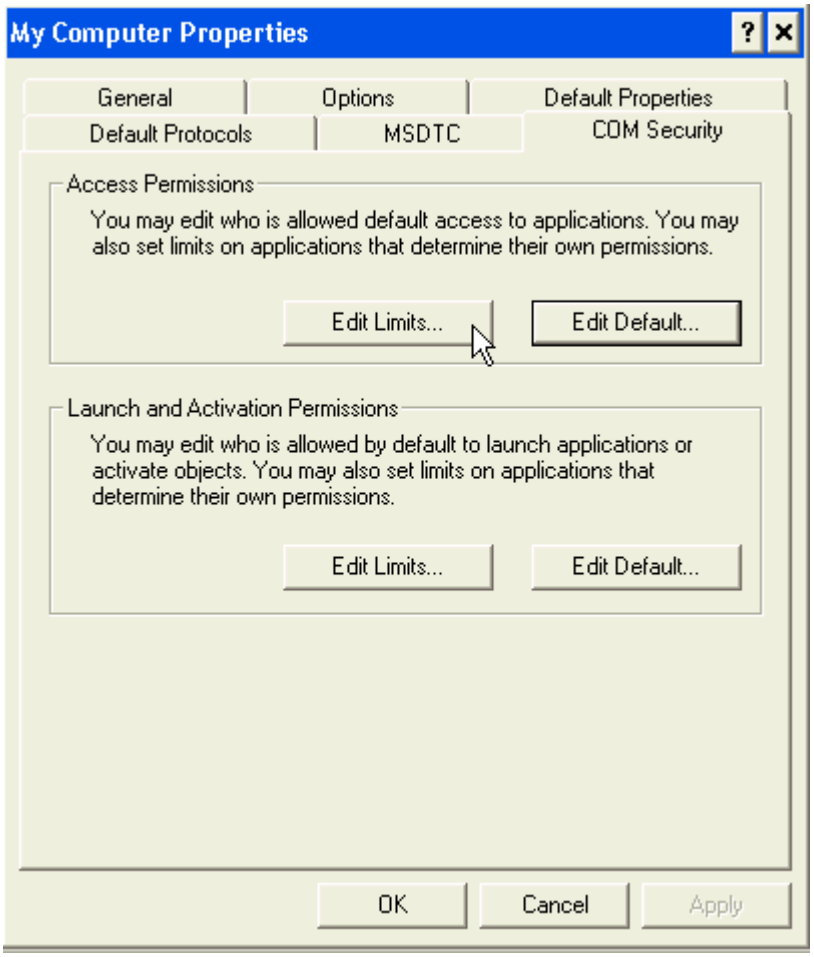
   You get access to the DCOM (see page 4) security settings.

2. **Within the tree, expand "Component Services" and "Computers"**

3. **From the pop-up menu of "My Computer", select "Properties"**



4. **Select the "COM Security" tab**


My Computer Properties
General
Options
Default Properties
Default Protocols
MSDTC
COM Security
Access Permissions
You may edit who is allowed default access to applications. You may also set limits on applications that determine their own permissions.
Edit Limits...
Edit Default...
Launch and Activation Permissions
You may edit who is allowed by default to launch applications or activate objects. You may also set limits on applications that determine their own permissions.
Edit Limits...
Edit Default...
OK
Cancel
Apply

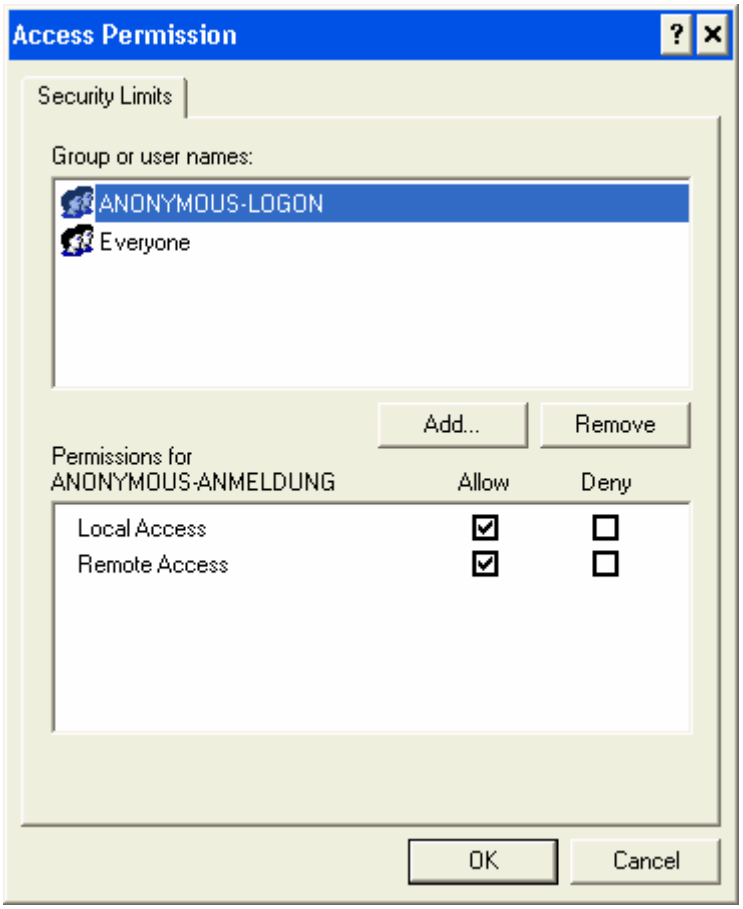
◆**NOTE**

Perform the following five steps to adapt the permission configurations.

Step 1: Edit access permission

1. **Select [Edit Limits...] under "Access Permissions"**

The user named "ANONYMOUS LOGON" is mandatory for the OPC Enumeration function.

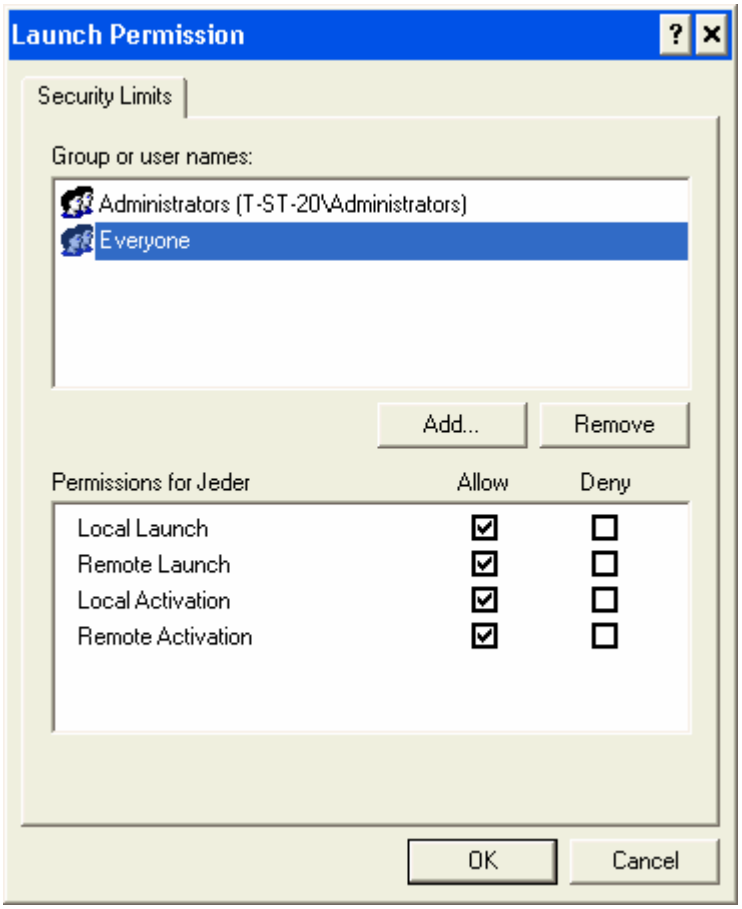


2. **Activate both "Allow" check boxes, for "Local Access" and "Remote Access"**
3. **[OK]**

Step 2: Edit launch permission

1. **Under "Launch and Activation Permissions", select [Edit Limits...]**

The user "Everyone" has to be adapted.



2. **Activate all 4 "Allow" check boxes, for "Local Launch", "Remote Launch", "Local Activation" and "Remote Activation"**
3. **[OK]**

◆NOTE

To reduce the access rights to a smaller group of users, select only the desired users from the list instead of the general user "Everyone".

Step 3: Add a new user who can remotely access the OPC Server

1. **Under "Access Permissions", select [Edit Default...]**
2. **Add a new user who can remotely access the OPC Server**

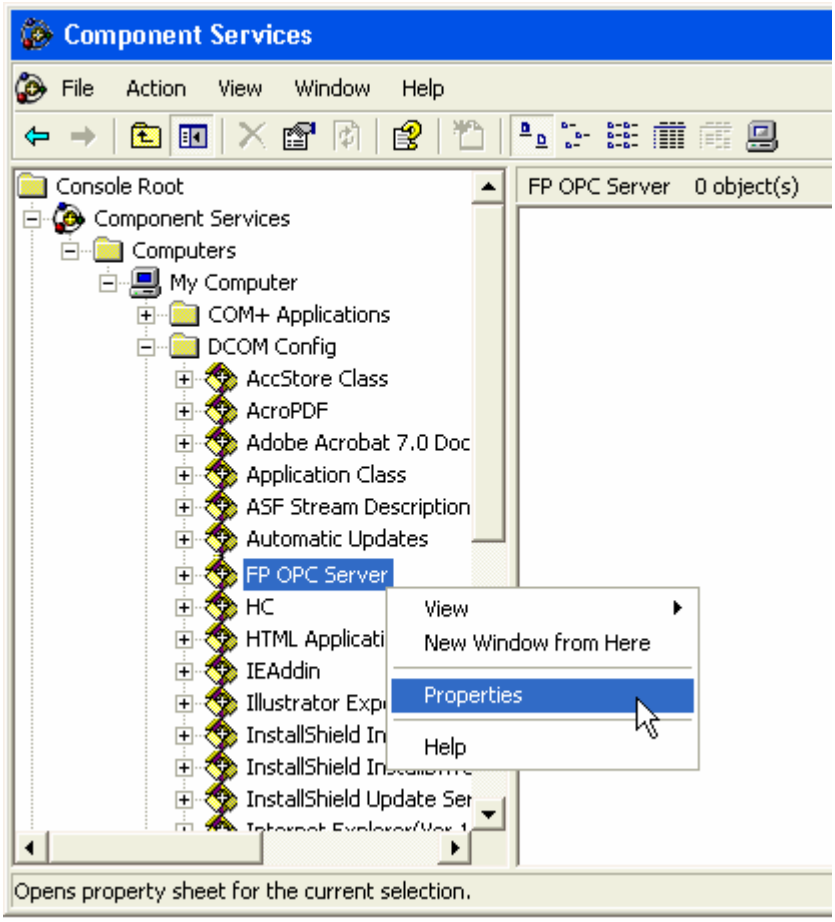
3. **Activate both "Allow" check boxes, for "Local Access" and "Remote Access"**

4. **Under "Launch and Activation Permissions", select [Edit Default...]**
5. **For th new user entry, select all 4 launch types.**

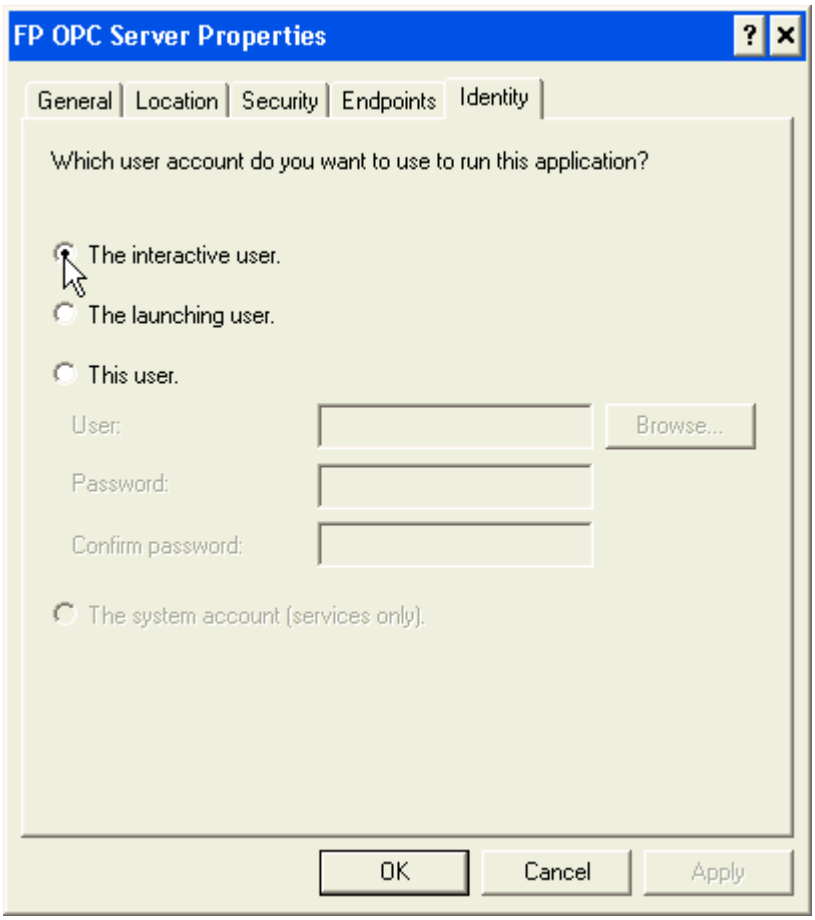
6. **[OK] to close the "My Computer Properties" dialog**

Step 4: Activate the interactive user

1. **Under "My Computer", expand "DCOM Config"**
2. **Select "FP OPC Server"**



3. **From the pop-up menu, open the FP OPC Server properties**
4. **Select the "Identity" tab and activate the "Interactive user" who shall run the OPC Server**



5. **[OK]**

Step 5: Reboot your PC after changing the DCOM security settings

5.5 Abbreviations

BCD
Binary Coded Decimal

COM
Component Object Model

CSV
Character Separated Values

DA
Data Access

DCOM
Distributed Component Object Model

DDE
Dynamic Data Exchange

GVL
Global Variable List (Control FPWIN Pro)

LBCD
Long Binary Coded Decimal

OLE
Object Linking and Embedding

OPC
OLE for Process Control

OutProc
An OutProc server realizes one of three characteristics of a standardized OPC server. If implemented as an OutProc server, the application is started by an OPC client from an autarkic executable file. The server application can reside on the local or a remote machine.

PLC
Programmable Logic Controller

XML
Extended Markup Language

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- Europe: tech-doc@eu.pewg.panasonic.com.

You can help us by having the following data at hand:

- Your product's **serial number** and **version number**. Both numbers are printed on the original disks. The version number is also indicated in the **Help** → **About ...** menu item.
- The **version and service pack numbers of MS-Windows** installed on your computer.
- The type of **hardware** you are using.
- The exact **wording of any message that appears on your screen**.
- **What happened** and **what did you do** when the problem occurred?
- How did you attempt to solve the problem?

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Record of Changes

Manual No.	Date	Description of Changes
ACGM0143V1.0END	Dez. 2006	First edition
ACGM0143V1.1END	Jan. 2007	Updated documentation: notes on removing the software (see page 18).
ACGM0143V1.2END	Apr. 2007	The description of Ethernet (Local) communication has been moved to the section Communication Settings (see page 59).
ACGM0143V1.3END	Mai 2007	Microsoft Windows Vista compatible
ACGM0143V1.4EN	Sept. 2007	MEWNET W/W2 connection removed
ACGM0143V1.5EN	Mai. 2008	New options are available under **Tools** → **Options** → Event Log Settings: - Enable debug message logging - Enable memory status message logging

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